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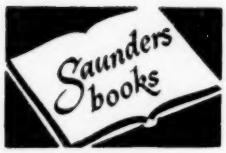

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CORTISONE TREATMENT OF SARCOIDOSIS

EXPERIENCE WITH THIRTY-SIX CASES

Harold L. Israel, M.D., Maurice Sones, M.D.
and
Dick Harrell, M.D., Philadelphia

Sarcoidosis is by no means a benign disease. Chronic disability is common, and blindness as a result of ocular involvement or death from progressive respiratory insufficiency may occur. There is need for a therapeutic agent, but trial of numerous drugs, antibiotics, and other agents was fruitless until the effectiveness of cortisone was shown.[1] Other observers [2] have also reported prompt and marked improvement during treatment with cortisone and adrenocorticotropic hormone. Objective evidence of the activity of these agents has been afforded by striking changes in histological appearance noted in serial biopsy studies [3] as well as by respiratory function studies.[4] However, relapse and even exacerbation have been noted when treatment was discontinued, and some observers have reported frequent activation of tuberculosis.[5]

Our experience with cortisone in therapy of sarcoidosis is with 36 patients, who have been observed for as long as 46 months after treatment. The results have been analyzed in an effort to formulate the indications for use of cortisone in cases of various types of the disease. Special attention has been given to the hazard of tuberculosis as a consequence of cortisone treatment. Finally, the pattern of response to cortisone was studied for possible clues to the nature of sarcoidosis.

SELECTION OF PATIENTS

Our criteria for the diagnosis of sarcoidosis have been previously described.[6] It should be emphasized that the diagnosis cannot be established by clinical, roentgenologic, or histological study alone; the diagnosis of sarcoidosis must be one of exclusion. In the patients included in the present study, one or more biopsies showing noncaseating tubercles have been secured, evidence of systemic involvement has been demonstrated, and special effort has been made to exclude by appropriate study tuberculosis, histoplasmosis, and berylliosis. The Kveim test, in our experience, cannot be relied on as an aid in the diagnosis of sarcoidosis.[7]

Those treated (table 1) do not represent a consecutive, unselected series of patients with sarcoidosis. As experience indicated that patients with indolent disease and mild symptoms obtained little benefit from cortisone, the group treated increasingly comprised those with ocular lesions or with progressive respiratory disability. All patients had symptoms except one whose extensive pulmonary infiltration had been detected in a chest roentgenogram survey. In this case, the fact that a survey film taken a year earlier had been normal indicated that the infiltration was recent, and it was considered justifiable to attempt to influence the roentgenologic changes despite the absence of symptoms. Many of the patients were quite ill. Severe respiratory disability led to the treatment of 11 patients. Acute uveitis was the indication for treatment in three patients, and acute parotitis was the indication in an additional three patients. Two patients were critically ill when cortisone therapy was instituted, one with myocardial involvement and the other with renal insufficiency. One patient with hypopituitary cachexia (Simmond's disease) received cortisone initially in the hope of reversing the pituitary changes; the use of cortisone was continued for its physiological action. In an-

From the Graduate Hospital and the Henry Phipps Institute of the University of Pennsylvania and the Woman's Medical College of Pennsylvania. This study was supported by grants from the National Institutes of Health, Department of Health, Education, and Welfare.

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other patient the indication for treatment was severe skeletal involvement simulating advanced rheumatoid arthritis. One patient with a laryngeal granuloma was subjected to exhaustive study to exclude the diagnosis of histoplasmosis before the diagnosis of sarcoidosis was accepted and cortisone was used. Two patients with cutaneous lesions on the face were treated in the absence of systemic symptoms. The remaining patients included those with symptoms of weight loss, malaise, cough, or dyspnea, often with chronic ocular and cutaneous disease.

The patients ranged in age from 20 to 52 years, with the majority of them in the third and fourth decades of life. Thirty of the patients in the series were Negro and six were white. One of the latter group was born in France and the other five in the northeastern states. In the nonwhite group, 23 were born in the southeastern states and 7 were born in the North.

Roentgenographic Findings.—The chest roentgenogram changes prior to treatment were classified according to the presence of mediastinal hilar adenopathy and according to the type of pulmonary lesions. It is recognized that lymph node involvement may be masked by the extensive pulmonary infiltration observed in advanced cases. Well-defined lymph node enlargement was demonstrable in 20 patients; in 12 instances it was accompanied by parenchymal changes. The pulmonary infiltration was classified according to roentgenologic appearance as miliary, representing close-set but discrete nodular lesions; pneumonic, usually patchy areas of soft density resembling diffuse bronchopneumonia; and fibrotic, in which the predominant features appeared to be sharply defined strands or nodules. Miliary lesions were encountered in six patients; in three instances the lesions were accompanied by lymphadenopathy. Lesions classified as pneumonic were observed in 13 patients; in eight instances they were associated with mediastinal nodes. Disease that appeared predominantly fibrotic was noted in seven patients; one of these had discernible hilar adenopathy.

TABLE 1.—*Patients with Sarcoidosis Treated with Cortisone*

Patient	Age	Sex	Race	Principal Manifestations	Duration of Symptoms, Months	Tuberculin Reaction	Total Dose, Gm.	Observation After Treatment, Months
1	43	F	N	Respiratory	60	3+/0.005 mg. PPD	3.0	59
2	52	F	W	Hepatosplenomegaly	8	3+/0.005 mg. PPD	2.3	42
3	36	M	W	Respiratory	12	Negative	4.8	19
4	24	M	N	Respiratory	3	Negative	1.0	5
5	25	M	N	Respiratory	84	Negative	36.0	12*
6	22	M	W	Asymptomatic	..	Negative	3.0	22
7	40	F	N	Ocular	120	Negative	2.5	12
8	27	F	N	Respiratory	1	Negative	3.0	30
9	23	M	N	Laryngeal	36	Negative	2.0	36
10	25	F	N	Erythema nodosum, parotitis	1	Negative	2.6	22
11	47	F	N	Cutaneous, skeletal	144	1+/0.00002 mg. PPD	3.5	17
12	29	F	N	Hypopituitary cachexia	9	3+/0.005 mg. PPD	25.0	21
13	37	M	N	Renal	4	2+/0.005 mg. PPD	3.0	41
14	23	M	N	Ocular	6	Negative	2.1	1
15	28	M	W	Respiratory	5	2+/0.005 mg. PPD	4.5	33
16	36	M	N	Ocular	2	Negative	5.8	3
17	22	M	N	Myocardial	4	Negative	4.5	8
18	24	F	N	Respiratory	48	3+/0.005 mg. PPD	11.0	5
19	22	M	N	Respiratory	15	Negative	4.2	3
20	39	F	N	Respiratory	9	1+/0.005 mg. PPD	3.0	18*
21	23	M	N	Ocular	4	Negative	2.8	17
22	20	F	N	Parotitis	3	Negative	1.5	46
23	30	F	N	Skeletal	96	3+/0.005 mg. PPD	3.0	30
24	32	F	W	Erythema nodosum, ocular	9	Negative	2.0	9
25	28	F	N	Respiratory, ocular	48	Negative	3.0	12*
26	28	F	N	Respiratory	72	2+/0.005 mg. PPD	12.3	24*
27	23	M	N	Ocular	3	1+/0.005 mg. PPD	2.0	15
28	33	M	W	Respiratory	16	Negative	6.0	30
29	30	M	N	Adenopathy	2	Negative	8.0	21
30	32	F	N	Cutaneous	6	Negative	3.6	21
31	31	F	N	Respiratory	4	Negative	12.0	29
32	26	M	N	Respiratory	4	Negative	12.6	23
33	45	M	N	Respiratory	6	Negative	4.5	9
34	32	M	N	Cutaneous	6	Negative	3.5	9
35	50	F	N	Cutaneous	18	Negative	3.5	31
36	21	F	N	Respiratory	5	2+/0.00002 mg. PPD	1.8	24

* = patient died.

TREATMENT

Treatment was initiated in all but five instances in the Graduate or Woman's Medical College hospitals; four patients were treated under our direct supervision at other hospitals, and one patient was treated as an outpatient. Cortisone was used intramuscularly in the first four patients; the remainder received oral medication. Most patients received 200 mg. daily for the first 10 days. The treatment thereafter was given on an outpatient basis. Eleven patients had their dosage rapidly reduced and discontinued. Nineteen patients with chronic disease were treated with gradually diminishing doses over periods of one to four months; they had total doses of 3 to 10 gm. Five patients with severe respiratory disability could

not tolerate elimination of cortisone therapy and have remained under treatment for one to two years.

Adrenocorticotropic hormone was used for the treatment of two patients in 1950. The second patient, who had advanced pulmonary changes, died during treatment as a result of cor pulmonale. We have since confined our study, as in the present series of 36 patients, to the use of cortisone.

Results of treatment were assessed according to roentgenologic and clinical criteria and, in a few instances, by respiratory function studies. Special effort was expended in securing serial films of comparable technique, since technical differences in films were often noted to be responsible for apparent changes. Roentgenologic and clinical evaluations of the effects of cortisone treatment were made (1) to ascertain the maximum therapeutic effect during the administration of cortisone and (2) to estimate the status of the patient at the end of the interval of observation after treatment.

The first patients were treated in May, 1950. The period of observations extends, therefore, to almost four years. The interval of observation was short in patients treated in 1953 and in a few patients who disappeared from observation shortly after treatment. For the most part, however, cooperation was good; the mean period of observation was 20 months, and the median was 19 months.

RESULTS OF TREATMENT

Symptomatic Response During Therapy.—Clinical improvement ranging from slight to dramatic was seen in 34 of the 35 patients with symptoms during the course of treatment. Sexual and racial differences in response to therapy were slight. Improvement was somewhat more frequent and marked in patients whose illness was of brief duration. Thus, marked improvement occurred in 61% of patients with symptoms of less than six months' duration, while a similar degree of improvement occurred in only 29% of patients with symptoms of more than six months' duration. It should be noted that the duration of sarcoidosis cannot be accurately estimated from the history. One patient had had a scalenectomy in 1941, at which time an incidental cervical lymph node removed for biopsy showed sarcoidosis (case 2). The patient was well thereafter until 1949, when cough, fatigue, and weight loss developed. Eight months later a study showed pulmonary infiltration and hepatosplenomegaly; a liver biopsy showed sarcoidosis.

The most dramatic response observed was that in three patients with parotitis and fever. In each case the parotid enlargement disappeared in the first 24 hours of therapy and was followed shortly by a decline in fever. The response of patients with acute uveitis was almost equally prompt and striking. Improvement in cough, dyspnea, cutaneous lesions, and hepatosplenomegaly was more gradual but was usually well marked by the end of 7 to 10 days of treatment.

Termination of cortisone therapy was carried out gradually. In most cases the symptomatic improvement was maintained through the period of decreasing dosage. In three patients, manifestations returned two to three weeks after discontinuation of drug treatment, but after a second less intense but more prolonged course of treatment the improvement was maintained. Some patients with severe respiratory symptoms who secured benefit from the cortisone experienced difficulty as the dosage was reduced prior to discontinuation. In five such patients it was necessary to continue therapy for prolonged intervals to maintain symptomatic relief. Two of these patients died of respiratory insufficiency after 12 and 24 months, respectively, of cortisone therapy. In both cases, benefit appeared to be afforded by cortisone until a few weeks before death.

The influence of cortisone on impaired respiratory function was studied in four patients through the kindness of Drs. Hurley L. Motley and Julius H. Comroe. In each instance there was impairment of maximum breathing capacity with significant improvement during cortisone treatment. One patient was anoxemic; a rise to normal saturation occurred during treatment.

Roentgenologic Changes During Therapy.—Roentgenologic improvement did not parallel the clinical improvement observed while cortisone was administered.

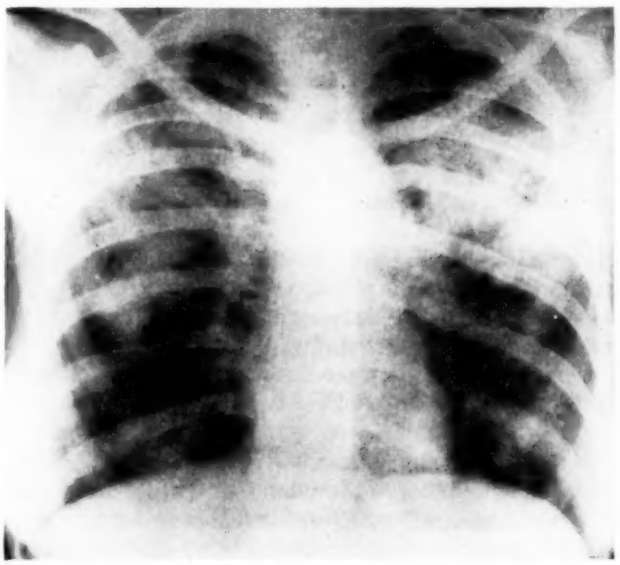

Fig. 1.—Chest roentgenogram of the patient in case 8, taken Dec. 12, 1951, showing diffuse pneumonic changes.

Complete clearing of pulmonary lesions occurred in three patients with astonishing rapidity. However, one patient relapsed after cortisone therapy was ended and required a second course before securing maintained clearing. Marked improvement was noted in the parenchymal lesions of other patients, but in many patients the improvement was minimal. Progression of disease was observed only in one case, in which there occurred further enlargement of mediastinal lymph nodes.

The parenchymal changes were more responsive to cortisone than the lymph node lesions. In eight patients there was no diminution in the mediastinal adenopathy, although at the same time ocular, parotid, and cutaneous lesions improved dramatically. Similarly, in some patients with combined mediastinal and pulmonary disease, striking clearing of the pulmonary lesions was noted while the lymph node enlargement regressed gradually over an interval of many months. The presence or absence of adenopathy did not appear to influence the effect

on the pulmonary lesions. Unequivocal improvement was observed in 5 of 12 patients who had combined disease and in 8 of 14 who had pulmonary disease alone.

The chronological sequence of development of the various types of roentgenologic lesions seen in sarcoidosis is not established. We have encountered no instance in which pulmonary lesions preceded the appearance of adenopathy, but occasional instances have been observed

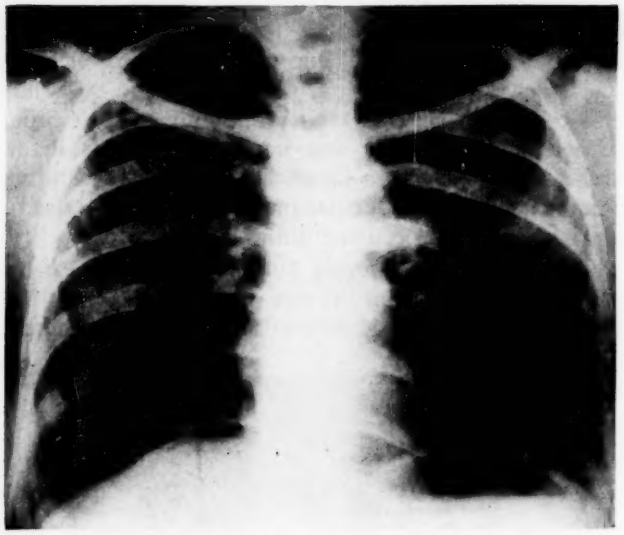

Fig. 2.—Chest roentgenogram of the patient in case 8, taken Jan. 12, 1952, showing marked clearing.

in which serial films demonstrated adenopathy before pulmonary infiltration developed. It is uncertain whether the three roentgenologic types of pulmonary lesions, i. e., miliary, pneumonic, and fibrotic, represent sequential stages or whether they are from the outset qualitatively different. The miliary nodular type of infiltration is more frequently encountered in association with acute and recent extrapulmonary manifestations and is the type most likely to undergo complete spontaneous resolution. It is not surprising, therefore, that this is the type most readily reversible by cortisone. In two instances, complete resolution occurred during a fortnight of treatment without recurrence after treatment ended. Two other cases of this type showed marked clearing but recurred on discontinuation of treatment, and two others were completely unaffected by the cortisone treatment although extrapulmonary manifestations improved dramatically.

Fluffy, patchy infiltration resembling scattered areas of bronchopneumonia appeared to be the predominant type of lesion in 13 patients. Improvement was less often noted during cortisone treatment in this group, but in one instance complete resolution occurred.

CASE 8.—The patient had been admitted to Graduate Hospital with a five-week history of cough, fatigue, and weight loss. A chest roentgenogram taken on Dec. 12, 1951, showed diffuse pneumonic changes (fig. 1). The serum globulin level was elevated. An intercostal pulmonary biopsy was indicative of sarcoidosis. Cortisone therapy, 200 mg. daily, was started on Jan. 4, 1952. A chest roentgenogram taken on Jan. 12, 1952, showed marked clearing (fig. 2). The dose was rapidly reduced to 25 mg. daily, and therapy was continued until Feb. 23, 1952. A total of 3 gm. was given. The patient had been well and working since February, 1952. A chest roentgenogram made on Jan. 4, 1954, showed very scant residual fibrosis (fig. 3).

The improvement in four other patients, although incomplete, was striking and was well maintained after courses of treatment employing 3 to 5 gm. of cortisone.

The last category comprised patients whose roentgenograms showed extensive infiltration with retraction of hilum structures and frequent evidence of emphysema. It was anticipated that little roentgenologic change would occur in this type of disease. Actually, marked but far from complete clearing occurred in four of seven patients. Many patients in this group received prolonged cortisone therapy for symptomatic reasons, and the roentgenologic improvement under these circumstances was well maintained for long intervals. Recurrence, however, was prompt when the use of cortisone was discontinued.

In two patients whose diffuse pulmonary lesions showed little or no response to cortisone, marked clearing later occurred spontaneously. It must not be assumed, therefore, that sarcoid lesions unaffected by cortisone treatment are irreversible.

In summary, roentgenologic improvement during cortisone treatment was not as striking or as consistent as symptomatic improvement. Among the 34 patients with chest roentgenograms showing abnormalities (two patients treated had films showing no abnormalities), there were eight with mediastinal adenopathy alone; none of the patients improved, and one became worse. Among the remaining 26 who had pulmonary lesions, unequivocal improvement occurred in 13; complete clearing occurred in 3 of these patients. In no instance was it observed that the condition became worse. The rapidity and intensity of improvement observed in two to three weeks of cortisone therapy is clearly not coincidental,

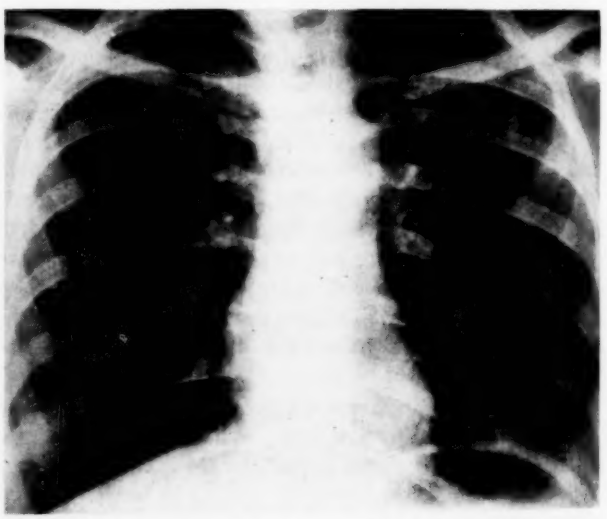

Fig. 3.—Chest roentgenogram of the patient in case 8, taken Jan. 4, 1954, showing very scant residual fibrosis.

since we have never observed change of this degree and rapidity in untreated patients. Roentgenologic improvement was permanent in some instances after only two weeks of treatment, while treatment for two to three months was required to effect permanent clearing in others. Especially in more advanced cases, improvement was maintained only as long as cortisone was administered.

Post-Treatment Evaluation.—A combined clinical and roentgenologic judgment on the course of the disease was made at the time of the last examination of each patient. Clinical recovery with complete clearing of chest roentgenographic changes occurred in three patients. Definite roentgenographic improvement with marked clinical amelioration was observed in 17 patients. The disease was not significantly influenced in 12 patients, and it proved fatal in 4 additional patients.

These findings have been compared with observations tabulated in 1951 on the course of the disease in untreated patients (table 2). The 39 patients who had at that time been observed for periods ranging to four years do not represent matched controls; actually they had less severe, frequently asymptomatic cases of sarcoidosis, since they were an unselected sample. Those selected for cortisone therapy, it should be noted again, with one exception had symptoms and were frequently quite ill. The higher mortality rate in those treated presumably reflects the greater proportion of advanced cases in this group, rather than the fact that the patients were given cortisone; however, it shows that cortisone therapy is not sufficient to avert death in the severe forms of this disease. Similarly, the greater frequency of complete roentgenologic clearing in untreated patients presumably reflects the higher proportion of mild or benign cases in this group.

The higher proportion of treated patients who were improved at the end of the period of observation, 55% as compared to 46% of the untreated group, is impressive when it is considered that the treated group consisted largely of ill patients with advanced lesions while the untreated group represented a random distribution of patients with sarcoidosis, many with minimal and benign disease.

Undesirable Effects of Cortisone Therapy.—It is a significant observation that tuberculosis has not developed in any of the treated patients (table 2). Toxic reactions from cortisone were not a major problem except in a patient in whom a severe psychotic reaction developed after the use of the drug was discontinued. Shock therapy was required in treatment of this episode. In no case was it necessary to discontinue the use of cortisone because of undesirable side-effects, although frequently minor reductions in dosage were required because of fluid retention.

Another untoward effect of cortisone treatment in sarcoidosis has been described by Stone [8] and by Sullivan and his associates.[9] A spread or exacerbation of disease after cessation of therapy has been designated "rebound relapse." In our experience the "rebound" phenomenon has not been important. Clinical and roentgenologic relapse occurred in a number of patients after discontinuation of therapy, but a second course of treatment resulted in sustained improvement. In several patients with advanced respiratory insufficiency, a prompt return of symptoms occurred on reduction of dosage and necessitated indefinite continuation of therapy.

TABLE 2.—*Effect of Cortisone Treatment on Course of Sarcoidosis*

	Patients	Period of Observation	Complete Clearing	Definite Improvement	No Improvement	Tuberculosis Developed	Patient Died
Untreated	39	1946-1950	6	12	18	0	3
Treated	36	1950-1954	3	17	12	0	4

COMMENT

Cortisone has in our experience exerted a consistently favorable symptomatic effect in sarcoidosis. Improvement in roentgenologically demonstrable pulmonary lesions was inconstant, and mediastinal adenopathy was not at all affected. The favorable effect, both clinical and roentgenologic, was transient in some instances and was maintained in others. Improvement was constant and often dramatic in certain extrapulmonary manifestations of sarcoidosis, notably the ocular and the parotid lesions.

The long-term effect of cortisone was less impressive, suggesting that in many cases, despite prompt symptomatic improvement, the course of the disease has not been altered. This is certainly true of many benign cases that go on to complete clearing, with or without therapy, and it is clearly true in the minority with inexorably fatal disease. There appear to be, however, a number of cases of intermediate severity in which the course is altered from a progressive to a retrogressive one by use of cortisone.

It appears, moreover, that a favorable outcome is achieved more rapidly with use of cortisone; and it would be reasonable on these grounds alone to recommend use of cortisone in all cases of sarcoidosis if this form of treatment were free of hazard and if the diagnosis of sarcoidosis could be established precisely. Unfortunately, cortisone is not an innocuous drug, and sarcoidosis may not infrequently be simulated by tuberculosis or mycotic infections in which the use of cortisone is dangerous.

A constant concern when cortisone is employed in the treatment of sarcoidosis is the development of tuberculosis. It will be noted in table 2 that in none of the patients treated by us is tuberculosis known to have developed, nor was tuberculosis recognized in patients treated by Siltzbach [2b] and Shulman and his associates.[2d] We have been informed, however, of numerous instances in which patients have been given cortisone on the basis of a diagnosis of sarcoidosis only to have tuberculosis make an explosive appearance subsequently. Lovelock and Stone [5] noted the development of tuberculosis in 3 of 11 patients with sarcoidosis given cortisone. It is evident from their protocols, however, that the tuberculosis in all three instances became manifest within a few weeks of the start of treatment. Clearly, these cases represented in-

8. Stone, D. J.; Schwartz, A.; Feitman, J. A., and Lovelock, F. J.: Pulmonary Function in Sarcoidosis: Results with Cortisone Therapy, Am. J. Med. **15**: 468, 1953.

9. Sullivan, R. D.; Mayock, R. L.; Jones, R., Jr., and Beerman, H.: Local Injection of Hydrocortisone and Cortisone into Skin Lesions of Sarcoidosis, J. A. M. A. **152**: 308 (May 23) 1953.

stances of tuberculosis simulating sarcoidosis and demonstrate the unhappy effect of cortisone administration in tuberculosis.

The tuberculin test is helpful although admittedly not infallible in distinguishing tuberculosis from sarcoidosis. We have had relatively little concern about tuberculosis in patients with typical sarcoidosis who had negative tuberculin tests or who reacted only to second strength tuberculin. A reaction to first strength tuberculin does not exclude sarcoidosis, since it is obtained in 5% of patients with sarcoidosis. Special caution should be exercised in use of cortisone for patients reacting to first strength tuberculin. Only two of the patients we have treated fell in this category. In one of these patients, although a peripheral lymph node had shown typical noncaseating tubercles, it seemed advisable to check doubly by performing an intercostal pulmonary biopsy. The presence of noncaseating tubercles in the lung justified, in our opinion, the use of cortisone, which resulted in marked symptomatic and roentgenologic improvement.

The hazards of cortisone therapy are not confined to tuberculosis; a similar effect obtains in fungal infections. We recently observed a patient who, given cortisone without benefit of biopsy because a negative tuberculin test and hyperglobulinemia led to a suspicion of sarcoidosis, proved to have blastomycosis. This infection was markedly aggravated by use of cortisone.

Accordingly it seems judicious to restrict the use of cortisone to selected cases of sarcoidosis. Although in our experience the danger of tuberculosis is small, it is evident from the experience of others that this danger cannot be disregarded. In patients who are disabled by respiratory insufficiency or whose vision is threatened by ocular involvement it appears justifiable to take this small risk. Cortisone should not be used in the asymptomatic patient, with the possible exception of apparently new cases, in which a two week trial of treatment may be justified. Fortunately the indications for use of cortisone are strongest in those forms of sarcoidosis in which there is least danger of confusion with tuberculosis. Patients with acute uveitis, parotitis, severe cutaneous lesions, hepatosplenomegaly, myocardial involvement, or respiratory or renal insufficiency are most in need of steroid therapy and are most likely to benefit by its administration. Such lesions are very rarely caused by tuberculosis, so that patients with weakly positive or negative tuberculin tests, hyperglobulinemia, biopsy specimens demonstrating nocaseating tubercles, and involvement of eyes, parotid glands, skin, heart, liver, or spleen may be given cortisone with confidence. On the other hand, exhaustive bacteriological and mycological study is required before administering cortisone to patients with strongly positive tuberculin reactions, evidence of oral and laryngeal ulcers, serosal lesions, adrenal insufficiency, draining sinuses, or other manifestations rare in sarcoidosis.

The cause of sarcoidosis is unknown; even its character is an enigma. Regarded as an infection by most investigators, efforts to demonstrate a bacterial, viral, or mycotic cause have not been rewarding.[10] The similarity of berylliosis has suggested a chemical cause, and attention has been drawn to the resemblance to the collagen disorders.[11] Certain inferences may be drawn from the response of sarcoidosis to cortisone. The failure of tuberculosis to become manifest in the patients we have treated is weighty evidence against the role of tubercle bacilli in this disease. The failure to observe febrile relapse during or after cortisone therapy in our patients seems to us impressive evidence against other infections, bacterial or fungal, as a cause of sarcoidosis.

Although sarcoidosis exhibits certain similarities to the collagen disorders, the response to cortisone differs considerably from the pattern observed in this group of diseases. In disseminated lupus erythematosus, for example, much larger doses of cortisone are usually required for control of symptoms, and the recurrence rate is extremely high. It is noteworthy that no instances of late relapse have been observed in this series. The deaths have been confined to the small group of patients with extremely advanced disease who could not tolerate discontinuation of therapy. Patients who obtained definite clinical and roentgenologic improvement and had cortisone withdrawn after an interval of several months have invariably maintained their improvement without recurrence.

SUMMARY AND CONCLUSIONS

In 36 patients with sarcoidosis treated with cortisone and observed subsequently for intervals as long as four years, symptomatic improvement, often marked, was noted in all except one instance and was maintained in many cases after the cessation of therapy. Benefit was most striking in patients with extrapulmonary manifestations, ocular, parotid, cutaneous, or myocardial, and was most marked in patients with symptoms of brief duration. Improvement in chest roentgenograms during cortisone therapy was less frequently observed. No significant effect on mediastinal lymphadenopathy was noted. Definite improvement occurred in 50% of patients with pulmonary infiltration; in a few instances complete resolution was effected.

Prolonged observation indicated that the course of the disease was favorably influenced in only a minority of cases. No instances of tuberculosis were encountered; four patients died of progressive sarcoidosis. A trial of treatment with cortisone is indicated for patients with ocular lesions, increasing roentgenologic changes, or debilitating symptoms. It is concluded that cortisone therapy may safely be given in instances in which a diagnosis of sarcoidosis is supported by careful studies. The pattern of response to cortisone exhibited by patients with sarcoidosis is not characteristic of infections or of the collagen disorders.

255 S. 17th St. (3) (Dr. Israel).

10. Rostenberg, A., Jr.: Etiologic and Immunologic Concepts Regarding Sarcoidosis, A. M. A. Arch. Dermat. & Syph. **64**: 385 (Oct.) 1951. Israel, H. L., and others: Chronic Disseminated Histoplasmosis: Investigation of Its Relationship to Sarcoidosis, Am. J. Med. **12**: 252, 1952.

11. Jackson, A., and Kass, I.: The Relationship Between Periarteritis Nodosa and Sarcoidosis, Ann. Int. Med. **38**: 288, 1953.

VERTEBRAL FRACTURES RESULTING FROM PROLONGED CORTISONE AND CORTICOTROPIN THERAPY

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and
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During the past year the authors have observed four male patients with rheumatoid arthritis in whom severe compression fractures of the vertebrae have developed during the administration of cortisone or corticotropin or both. Although demineralization of the skeleton is a recognized complication of cortisone therapy, these cases have prompted the authors to emphasize the importance of possible pathological fractures when prolonged treatment of this nature is used.

Demartini, Grokoest, and Ragan,[1] in 1952, reported pathological fractures in five patients who had received intensive cortisone therapy. As these authors pointed out, however, other factors predisposing to osteoporosis were present in that all five patients were women (four had passed the menopause) and three had severe rheumatoid arthritis. In the same year Teicher and Nelson [2] reported the case of a young woman with pemphigus vulgaris who was treated for three years with cortisone, during which time pathological compression fractures from the ninth thoracic to the fifth lumbar vertebra were demonstrated, and Soffer and Bader [3] reported compression fractures of the 12th thoracic and 1st lumbar vertebra in a 58-year-old woman with lupus erythematosus disseminata treated with cortisone. Five other cases of pathological fractures occurring in patients during cortisone or corticotropin therapy were reported in 1953.[4]

The four patients whose cases are presented in this report were all male, and although the osteoporosis of chronic rheumatoid arthritis might have contributed to their condition we believe that prolonged cortisone therapy was of primary importance in the production of the pathological fractures.

REPORT OF CASES

CASE 1.—A 57-year-old white man was first admitted to University Hospitals in April, 1951. In February, 1951, pain in both shoulders had developed. This was followed by fever and swelling, redness, and tenderness of the fingers, knees, ankles, and elbows. Examination showed a temperature of 100.4 F, a fixed rib cage, spindle-shaped fingers, swelling of the metacarpophalangeal joints, ulnar deviation of the fingers, and limitation of motion, swelling, and tenderness of the shoulders and knees. On the sixth hospital day cortisone therapy was started with dramatic relief of symptoms, and on April 25, 1951, the patient was discharged. He was receiving 50 to 100 mg. of cortisone daily. Six months later an attempt to withdraw cortisone resulted in a prompt rise in temperature to 103.2 F. The temperature returned to normal when corticotropin was administered. The patient was discharged and given 40 units of corticotropin (Acthar) gel daily. When the patient was readmitted in May, 1953, examination showed obvious hypercortisonism with a "moon face," "buffalo hump," and hemorrhagic phenomena of the skin. X-ray examination of the lumbosacral spine in May, 1951, showed extensive demineralization (fig. 1). Despite continued corticotropin therapy, joint symptoms had persisted. The patient's fourth admission in September, 1953, was for the complaints of ankle edema, dyspnea, and back pain, the last having been present for three weeks prior to admission. X-ray examination of the spine showed partial collapse of the 10th, 11th, and 12th thoracic vertebrae and the 4th and 5th lumbar vertebrae. There was marked demineralization with anterior wedging and biconcavity of most of the vertebrae. Laboratory studies on the fourth admission showed no abnormalities in the urine, a white blood cell count of 9,200 per cubic millimeter, and a hemoglobin level of 13 gm. per 100 cc. The serum protein level was 5.2 gm. per 100 cc. with 3.5 gm. of albumin and 1.4 gm. of globulin. The serum calcium level was 10.9 mg. per 100 cc.; phosphorus, 3.9 mg. per 100 cc.; alkaline phosphatase, 6.2 Bodansky units; and acid phosphatase, zero.

CASE 2.—A 67-year-old white man was admitted to the University Hospitals on May 28, 1953. Symptoms of rheumatoid arthritis had developed in the patient in 1943 with progressive involvement of almost all peripheral joints. He had received cortisone for about one year before admission. The dose of cortisone had ranged between 75 and 100 mg. per day, and he had experienced marked subjective improvement. On April 30, 1953, while disassembling a pipe in the basement of his house, he felt a sudden sharp pain in his back. Although the back pain persisted, he continued his usual activities, including a trip to Florida. Enroute to Cleveland his back pain became so severe that he consulted a physician in Philadelphia who, after x-ray examination of the spine, diagnosed a compressed fracture of the 11th thoracic vertebra. The patient returned to Cleveland and was admitted to University Hospitals on May 26, 1953, complaining of pain in the lower thoracic spine. The patient's medical history showed that hypertensive cardiovascular disease had been known to exist since 1952. In 1948, he had been hospitalized for a pulmonary condition manifested by multiple pulmonary lesions, though bronchoscopy was negative and paraffin block examination of pleural effusion fluid showed no malignant cells. Subsequent studies in 1952 showed no progression in the pulmonary findings. On examination the patient appeared chronically ill and showed multiple peripheral joint involvement characteristic of rheumatoid arthritis. Examination of the prostate showed a firm central area in the region of the sulcus. The remainder of the physical examination showed no abnormalities. Roentgenograms of the dorsolumbar portion of the spine confirmed the diagnosis of a compression fracture of the 11th thoracic vertebra and showed extensive, generalized demineralization of the vertebrae (fig. 2). Laboratory studies showed no abnormalities in the urine, a white blood cell count of 7,500 per cubic millimeter, and a hemoglobin level of 14.6 gm. per 100 cc. The total serum protein was 6.1 gm. per 100 cc.; serum albumin, 4 gm. per 100 cc.; serum globulin, 2.1 gm. per 100 cc.; serum calcium, 11.9 mg. per 100 cc.; serum phosphorus, 3.2 mg. per 100 cc.; alkaline phosphatase, 8.9 Bodansky units; and serum acid phosphatase, 0.3 Bodansky units.

From the Department of Orthopedic Surgery and the Department of Medicine, Western Reserve University and the University Hospitals.

These studies were supported in part by the Cleveland Chapter of the Arthritis and Rheumatism Foundation.

1. Demartini, F.; Grokoest, A. W., and Ragan, C.: Pathological Fractures in Patients with Rheumatoid Arthritis Treated with Cortisone, J. A. M. A. **149**: 750-752 (June 21) 1952.

2. Teicher, R., and Nelson, C. T.: Osteoporosis and Pathological Fractures Following Treatment with ACTH and Cortisone, J. Invest. Dermat. **19**: 205-210, 1952.

3. Soffer, L. J., and Bader, R.: Corticotropin and Cortisone in Acute Disseminated Lupus Erythematosus, J. A. M. A. **149**: 1002-1008 (July 12) 1952.

4. de Sèze, S.; Hubalt, A., and Renier, J. C.: Quatre cas de fractures spontanées observées chez des malades traités par la cortisone, Presse Méd. **39**: 819, 1953. Case Records of the Massachusetts General Hospital: Case 39221, New England J. Med. **248**: 945-950, 1953.

CASE 3.—A 9-year-old white boy had a febrile illness characterized by migrating joint pains in May, 1949. He was treated with bed rest for three months and showed improvement. In December, 1949, persistent pain in the elbows developed, followed by pain and swelling of most peripheral joints, fever, and an elevated sedimentation rate. A diagnosis of multiple rheumatoid arthritis (Still's disease) was made, and the patient received two short courses of cortisone therapy. Cortisone therapy

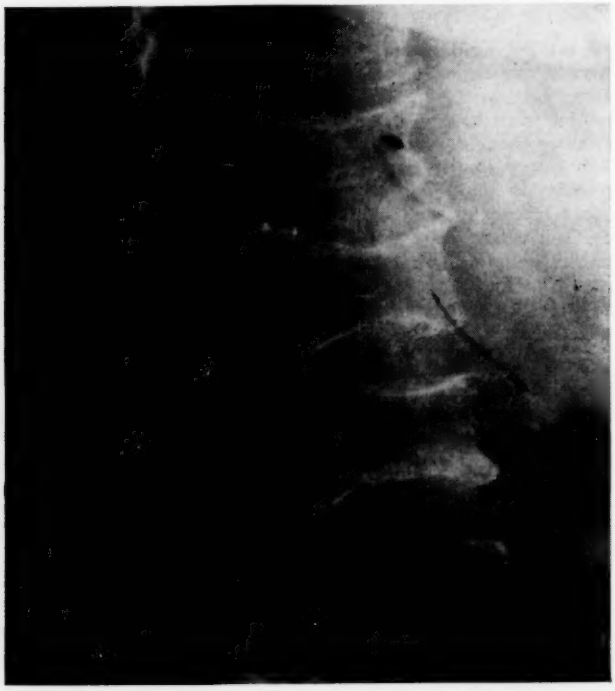

Fig. 1.—Roentgenogram showing lateral view of the patient reported on in case 1. Partial collapse of several vertebrae and marked generalized osteoporosis are seen.

was not continued, but the disease remitted with conservative therapy over an 11 month period. He then remained without symptoms for 13 months, but at the end of this period an exacerbation occurred and continuous cortisone therapy was started (in May, 1952) in doses ranging between 100 and 200 mg. per day. Attempts to later reduce the dose below 100 mg. per day resulted in febrile exacerbations. He was admitted to University Hospitals in August, 1952. For 24 hours prior to admission he had noted pain in the chest and shoulder.

Examination showed a typical "moon face" and "buffalo hump." The cortisone dosage was gradually withdrawn, and corticotropin given intravenously was substituted in a dosage of 15 mg. per day. He was readmitted briefly in February, 1953, for a second course of corticotropin and discharged and given cortisone (100 to 200 mg. per day). He was admitted to Babies' and Children's Hospital on Aug. 29, 1953, with complaints of fever, dyspnea, and abdominal pain. X-ray examination of the spine showed generalized demineralization with multiple compression fractures of vertebral bodies from the seventh thoracic to the fifth lumbar vertebra (fig. 3). (It is of interest to note that the patient was an enthusiastic stamp collector and spent a least an hour a day bending over his collection on a card table.) Laboratory studies showed no abnormalities in the urine, a white blood cell count of 12,000 per cubic millimeter, and a hemoglobin level of 12.2 gm. per 100 cc. The serum phosphorus level was 2.8 mg. per 100 cc., and the alkaline phosphatase level was 7.9 Bodansky units.

CASE 4.—A 63-year-old white man was admitted to University Hospitals for the first time on Sept. 1, 1953, with a chief complaint of pain in the low back on motion. In May, 1951, rheumatoid arthritis characterized by periodic, transient episodes of swollen, red, and painful joints had developed. He had been treated with salicylates without symptomatic relief. This had been followed by the administration of cortisone but, since 200 mg. a day was necessary to control his symptoms, this was discontinued after 12 weeks. The symptoms recurred after withdrawal, so that in February, 1953, cortisone was resumed in a smaller dosage of 75 to 100 mg. per day. This dosage was continued until the time of admission, when examination showed the typical peripheral joint involvement of rheumatoid arthritis. There was also slight tenderness to percussion over the lower dorsal spine and slight enlargement of the spleen. Roentgenograms of the spine showed marked demineralization, biconcavity of the vertebral bodies, and compression fractures of the 11th thoracic and 1st lumbar vertebrae. Roentgenograms of the chest showed fractures of the third and fourth ribs with some callus formation. Roentgenograms of the skull showed no demineralization, but there was osteoporosis of the femurs. Laboratory studies showed no abnormalities in the urine, a white blood cell count of 9,900 per cubic millimeter, and a hemoglobin level of 15.7 gm. per 100 cc. The total serum protein level was 7.2 gm. per 100 cc.; albumin, 3.9 gm.; globulin, 3.3 gm.; calcium, 9.5 mg.; phosphorus, 5.6 mg.; alkaline phosphatase, 6.2 Bodansky units; and acid phosphatase, 0.1 Bodansky units.

COMMENT

These cases again illustrate one of the serious hazards of prolonged treatment with cortisone or corticotropin. In all four patients, destructive lesions of bone were reasonably well excluded by clinical methods, and the weight of evidence supports metabolic osteoporosis as the principal cause of the fractures.

The question naturally arises as to the precise role of cortisone or corticotropin in the genesis of such severe demineralization, which is apparently a result of excessive excretory losses of calcium, phosphorus, and

Fig. 2.—Roentgenogram showing lateral view of the low dorsal part of the spine of the patient reported on in case 2. Marked collapse of the 11th dorsal vertebra and generalized osteoporosis are seen.

nitrogen. These metabolic phenomena are known to be associated not only with the administration of cortisone and corticotropin [5] but also with rheumatoid arthritis [6]

5. Sprague, R. G., and others: Observations on Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. **85**: 199-258 (Feb.) 1950.

6. (*a*) Ropes, M. W.; Rossmeisl, E. C., and Bauer, W.: Calcium and Phosphorus Metabolism in Rheumatoid Arthritis and Degenerative Joint Disease, J. Clin. Invest. **22**: 785-790, 1943. (*b*) Clark, W. S.; Watkins, A. L.; Tonning, H. O., and Bauer, W.: Effects of Resistance Exercises on Nitrogen, Phosphorus, and Calcium Metabolism of Patients with Rheumatoid Arthritis, J. Clin. Invest. **33**: 505-509, 1954.

and simple immobilization.[7] Without controlled balance studies, one can only surmise that the administration of the hormone has been a major factor in the cases presented.

Other variables such as age, sex, diet, and hormone dosage can be of influence in the causation of this compli-

Fig. 3.—Roentgenogram showing lateral view of the dorsolumbar spine of the patient reported on in case 3. Multiple compression lesions of the vertebral bodies with marked osteoporosis are seen.

cation of hormone therapy. Osteoporosis syndromes are more often found in females and in older age groups. Moreover, doses of cortisone necessary to induce negative calcium, phosphorus, and nitrogen balances experimentally have been higher in males.[5] Thus, everything else being equal, it would appear that younger males would be more resistant to these unfavorable effects of cortisone. These four cases illustrate, however, that such an advantage can be lost by administration of higher doses of the hormone. It is not known how effectively diet can prevent the disturbances of nitrogen and mineral balance induced by cortisone.

It has been shown that testosterone favors calcium, phosphorus, and nitrogen retention in adrenal cortical hyperfunction (Cushing's syndrome),[8] in rheumatoid arthritis,[6b] and during administration of cortisone.[5] Estrogens, while having a similar effect in postmenopausal or senile osteoporosis, may not effectively influence the mineral and nitrogen losses induced by cortisone.[5] It has also been shown that physical activity has similar effects on calcium and nitrogen metabolism during the course of rheumatoid arthritis [6b] and immobilization.[7]

These reported observations indicate that severe osteoporosis and pathological fractures might be prevented by the use of testosterone and physical activity, by limiting the intake of cortisone or corticotropin, and by exercising extreme caution in administering these agents to patients predisposed to osteoporosis, i. e., elderly patients, postmenopausal women, and patients with severe arthritis or markedly restricted by arthritis. Once this complication has occurred, however, cessation of cortisone therapy is indicated because of the uncertainty and relative ineffectiveness of countermeasures available. Proper orthopedic management is, of course, of utmost importance.

SUMMARY

In four male patients receiving prolonged cortisone and corticotropin therapy, multiple pathological fractures of the spine developed. Although other factors predisposing to osteoporosis (chronic rheumatoid arthritis and "disuse atrophy") were present in all four cases,

Fig. 4.—Roentgenogram showing lateral view of the dorsolumbar spine of the patient reported on in case 4. Osteoporosis and "codfish" appearance of several vertebrae with compression of the 11th dorsal vertebra and the first lumbar vertebra are seen.

it is the authors' opinion that the prolonged administration of cortisone or corticotropin was of primary importance in the severity of the osteoporosis that led to pathological fracture.

2065 Adelbert Rd. (6) (Dr. Curtiss).

7. Deitrick, J. E.; Whedon, G. D., and Shorr, E.: Effects of Immobilization upon Various Metabolic and Physiologic Functions of Normal Men, Am. J. Med. **4**: 3-36, 1948.

8. Albright, F.: Cushing's Syndrome: Its Pathologic Physiology, Its Relationship to Adrenogenital Syndrome, and Its Connection with Problem of Reaction of Body to Injurious Agents ("Alarm Reaction of Selye"), Harvey Lec. **38**: 123-186, 1942-1943.

THE VALUE OF ILLUSTRATION IN MEDICAL WRITING

Russell L. Drake, Rochester, Minn.

Most physicians realize the worth of a good illustration as an aid in describing a technique or a condition; therefore, this presentation may be in the nature of a review, or it may bring out a few new points. It has been said that a picture is worth 10,000 words or a certain number of pages of text. In reality it is worth far more than that, for in many instances description alone, regardless of the number of words used, leaves the reader without a clear impression of what the author is trying to explain. Often, one illustration will be the clincher, the one thing that will put an idea over, whereas without it the reader may be partly or totally confused.

The illustration need not be complicated or elaborate, but it must be good and made by an artist especially trained in medical drawing. Pictures should not be made by someone the author happens to know who can draw. A person may be an excellent artist, but that is not enough; he must be trained in the specialty of medical illustration. This education can be obtained in several schools of medical illustration in this country; one must have had thorough training in drawing before entering these schools. Such schools are affiliated with medical schools, and the student of medical illustration takes the same course in anatomy as that given medical students. He is taught the techniques and media that are best suited to medical drawing and the methods used to obtain the best results in publication. He becomes familiar with procedures in the operating room and the appearance of live tissue. Without this special training he is not equipped to make a medical drawing, and any author who has a drawing made by one not so trained almost certainly will regret it.

Often one illustration is all that is needed to clarify an article. No value accrues from padding a paper with drawings. It is important to use illustrations only when a definite need for them exists; unnecessary illustrations, aside from being expensive, merely take up the time of the reader, time that is sorely needed in trying to keep ahead of the avalanche of current medical literature. If an author expects his article to be read, it must be presented in the clearest possible manner and in such a way that the reader may grasp the idea in the shortest possible time. This does not mean that all writings require illustrations. When drawings are not called for, they should not be used. If, however, a certain technique is difficult to describe, the value of a suitable illustration should not be overlooked. Many good ideas are lost for want of a suitable drawing.

TYPES OF ILLUSTRATION

Many times a simple diagram is all that is needed; however, when form and texture are important, a more elaborate drawing can be made. The drawing should be made in such a way that attention is called to the most important part, while the remainder of the drawing is subordinate. Just enough of the surrounding anatomic features should be pictured to orient the viewer. Lettering on a drawing draws attention to the important parts, and for this reason, excessive lettering should be avoided. Occasionally, however, as in making an anatomic study, much lettering must be used. The medium used in making the drawing should be considered. Use of pen and ink is excellent for simple diagrams and semidiagrammatic drawings. Tone drawings are usually made when form and texture are important. Color is used occasionally, but only when it is of utmost importance, as reproduction of color greatly increases the costs, and some journals do not use colored illustrations.

Graphic representations are also of definite value. A graph should be kept as simple as possible, since one with a great amount of detail and a complex assortment of curves will defeat its purpose. A graph should give the viewer a certain idea, such as the result of an experiment or a comparison of data. If an attempt is made to show the whole story on one graph it becomes so complicated that most readers will not even look at it. The size and amount of lettering on a graph are of utmost importance. The size of lettering varies with the size of the graph. Lettering should be large enough to show on lantern slides as well as when reduced for publication. Many authors tend to forget that, particularly in lantern slides, there is a definite limitation to the number of words that can be used. If this limit is exceeded, the lettering will not be legible when projected.

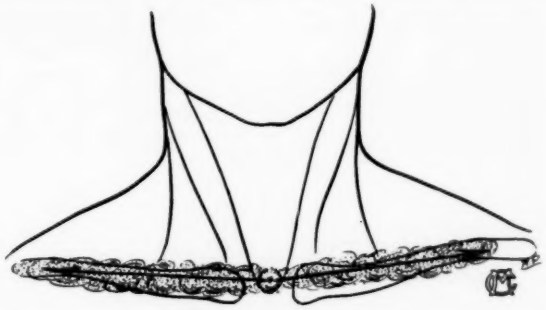

Fig. 1.—Simple outline drawing.

The author and the artist should discuss in consultation the type of drawing to be used; the author describes what he is most interested in showing, and the artist decides what medium will best express it. The artist then makes a preliminary sketch, which he presents to the author. The author should study this preliminary drawing carefully, because the artist would like to make all necessary changes on this sketch, at a stage when changes are easily made. Changes can be made on the final drawing, but they are more difficult at that time and will mar the appearance of the drawing, in addition to adding to expense.

MEDIUMS OF ILLUSTRATION

Some thought should be given to the journal in which a paper is to be published. Pen and ink drawings have

Read before the Section on Anesthesiology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 22, 1954.
From the Art Studio, Mayo Clinic.

the advantage of reproducing well even on inferior grades of paper. Tone drawings require a good grade of paper for satisfactory reproduction and cost somewhat more to reproduce than pen and ink drawings. Some medical journals use a better grade of paper than others, which might be kept in mind when a decision is made on the medium to be used for the drawings.

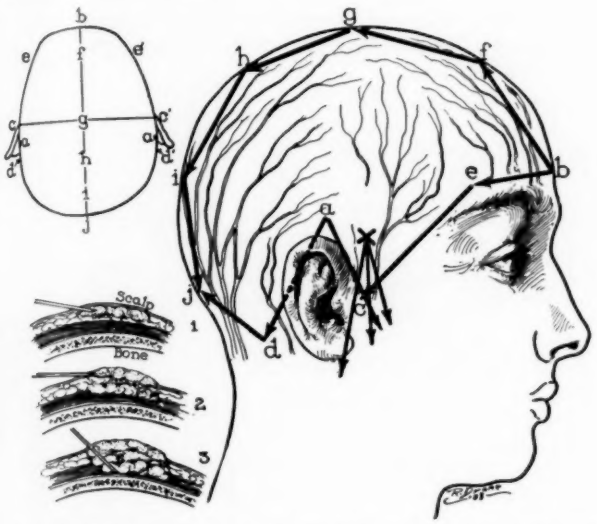

Fig. 2.—Simple pen and ink drawing with a small number of lines added for shading.

Some examples of the different illustrations that have been referred to will indicate their practical application. Figure 1 shows a simple outline drawing. This diagram of the technique of supraclavicular infiltration is the simplest type of drawing. The author's thought can be grasped at a glance; the point of injection and the direction and extent of infiltration are immediately evident. Description of the same technique would take many words and much of the reader's time.

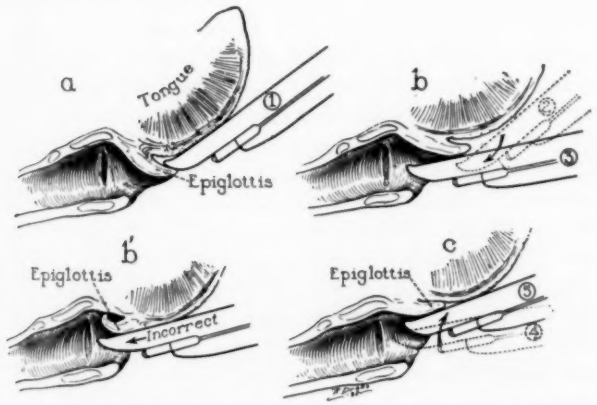

Fig. 3.—An example of a drawing that illustrates procedures that would be difficult to describe with words alone.

A simple pen and ink drawing is seen in figure 2. Here, in addition to outline, lines have been added to give some modeling. Much text would be necessary to describe this scalp block; the advantages of an illustration in such instances as this are obvious.

Figure 3 is a pen and ink drawing illustrating insertion of a laryngoscope. This shows how simply steps in a procedure can be pictured. Numbering the steps guides the reader through the various maneuvers. Arrows indicate direction. It would be difficult to describe this procedure properly without the aid of an illustration. The picture left in the mind of the reader is clear and definite, and the illustration is also valuable as a ready reference.

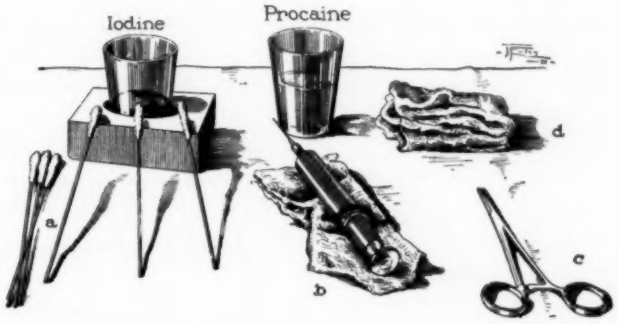

Fig. 4.—When a photograph is not clear, a drawing such as shown above will accent the parts that the author wishes to describe.

Often, photographs will fulfill the need for illustration; however, in some instances, apparatus or the contents of a tray are not entirely distinct in a photograph. A pen and ink drawing made from the photograph or from the original articles often makes a better illustration, as exemplified by the drawing of the contents of a tray used for dental anesthesia (fig. 4). Disturbing highlights and shadows are left out in a drawing, and accent can be placed only on those details that are of importance. The shading can be so placed that it clearly demonstrates what is to be shown.

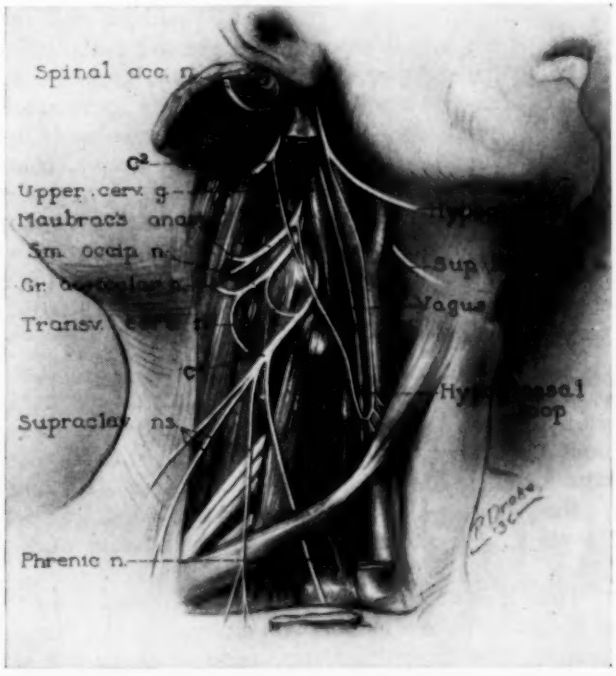

Fig. 5.—Tone drawing, which is used when more realism is desired, or when a line drawing may be confusing.

As already mentioned, tone drawings are used when, because of the complication of detail, a line drawing might be confusing. A tone drawing is shown in figure 5. This medium was chosen because it gives an excellent

demonstration of the nerves of the neck. This drawing has much lettering, but in this case, as in most anatomic studies, it is necessary to identify the structures.

SUMMARY AND CONCLUSIONS

Illustrations can greatly improve the clarity and conciseness of a medical article when they are used to depict techniques or conditions that cannot be described clearly or with economy of words. The qualified medical illustrator has been specially trained in medical sciences and should be looked on as a consultant by the physician who solicits his help. Simplicity of drawing is to be emphasized when it will suffice to tell the story. Surrounding structures should be subordinated in favor of the main focus of the drawing. Overillustration is to be condemned, for needless drawings only take the time of the reader. The written word can be used by itself as a means of description, but the ideal combination of words and good illustrations makes a paper interesting, attractive, and, what is most important, understandable.

PROGNOSTIC SIGNS IN HODGKIN'S DISEASE

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and
Henry D. Diamond, M.D., New York

The marked variations in the survival of different patients with Hodgkin's disease have given rise to a number of proposed prognostic factors. This report reevaluates these factors by comparing a group of patients with an extremely rapid course against a group of long-term survivors to determine whether a patient with Hodgkin's disease when first seen presents any clinically detectable signs that may aid in estimating the prognosis.

MATERIAL AND METHOD

The hospital charts of 1,000 patients with Hodgkin's disease were reviewed, and 26 patients were found whose total duration of disease from the first estimated symptom to death was six months or less. These patients were then compared with a second group of 73 patients who survived more than 10 years after a positive pathological diagnosis had been made. Neither of the groups is intended to show an index of survival, since, particularly in the long-term group, many cases were eliminated due to the lack of adequate information on the hospital chart. Five patients had double primary neoplasms, i. e., proved Hodgkin's disease associated with a malignant tumor. There were two patients with cancer of the rectum, two patients with cancer of the breast, and one patient with osteogenic sarcoma caused by irradiation received 14 years earlier.

RESULTS

Age at Onset.—Figure 1 demonstrates the age at onset by decade. In the group of patients who survived less than six months, the age range was from 14 to 74 years, with a median of 38 years and an average of 41.5 years. In the group of long-term survivors the range was 5 to 71 years, with a median of 27 and an average of 30.5 years.

Thus it is noted that the long-term survivors in the study group have a median and an average age that are younger than those in the short-term survivors. It is also obvious from figure 1 that the older age groups do not do quite as well as the younger patients. However, inasmuch as long-term survivors existed also in the older age group, this is only a generalization and as such is not statistically significant.

Sex.—In the short-term survivor group there were an equal number of males and females, 13 in each group, while in the long-term survivor group there were 42 (58%) males and 31 (42%) females. The menstrual status of the 13 women who survived less than six months was normal in three, amenorrheic in three, postmenopausal in five, and unknown in two. Of the 31 females who lived more than 10 years after the positive biopsy, 24 had normal menstrual histories, five were postmenopausal, one was prepubertal, and in one the menstrual history was unrecorded. Four women became pregnant during their disease without apparent alteration in the course of Hodgkin's disease. No statistically significant differences were found in sex, race, color, and marital status.

Diagnosis.—Figure 2 presents the diagnosis at the time of the original biopsy of the entire group of patients. All such slides have been reviewed and the diagnoses confirmed. In certain cases the pathological picture could not be completely subdivided, and Hodgkin's disease was the only diagnosis rendered. Three patients whose original tissue biopsy showed Hodgkin's sarcoma lived more than 10 years; one patient has been free of disease for the past 21 years. One patient with Hodgkin's paragranuloma died of the disease within six months after onset of symptoms. Figure 3 refers to the stage of the disease when the patient was first seen at Memorial Center. Class 1 refers to those patients whose disease is presumably localized to one node or one group of nodes. Class 2 signifies regional disease, the involvement of two contiguous groups of lymph nodes, and class 3 includes all cases of this disease more extensive than previously defined, usually signifying generalized disease. In this paper class 0 refers to two patients who were treated elsewhere and who, when they were first seen at Memorial Center, presented no evidence of disease. There are more long-term than short-term survivors in class 1; however, a few patients with disease localized to one area died within six months after the onset of their symptoms. Although this may reflect our inability to detect generalized disease in the very early stage, the same methods of examination and diagnosis were used and therefore should be roughly comparable. By far the ma-

From the Medical Neoplasia Service, Memorial Center for Cancer and Allied Diseases.

jority of patients with short-term survival had generalized disease when first seen at Memorial Center, but it should be noted that over one-third of the patients with long-term survival had generalized disease (class 3) when first seen. The source of the diagnosis in most patients was either a surgical biopsy of a lymph node done at Memorial Center or submitted slides of a node biopsy performed at another hospital.

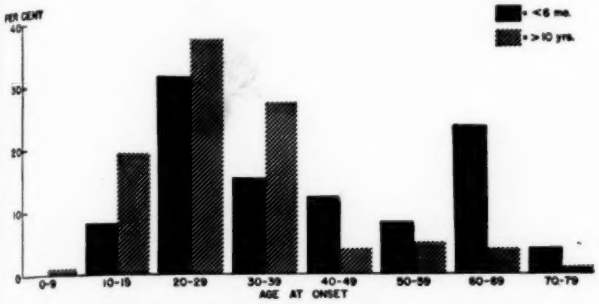

Fig. 1.—Stated age of patients at onset of Hodgkin's disease, by decade.

Family History.—Cancer, tuberculosis, diabetes mellitus, allergy, thyroid disease, and blood dyscrasia were noted in the family history of patients interviewed. Twelve of the 26 patients of the group of short-term survivors and 39 of the 73 patients who were long-term survivors had no significant contributing history. The family history was unknown in 7 of the short-term patients, and 15 family histories were unrecorded in the long-term survivor group. It is obvious that there is no significant family history in this group of patients. None of the patients had a family history of lymphoma.

Personal History.—There was no significant personal history in 16 of the short-term survivors or in 42 of the long-term survivors. The history was not recorded in one

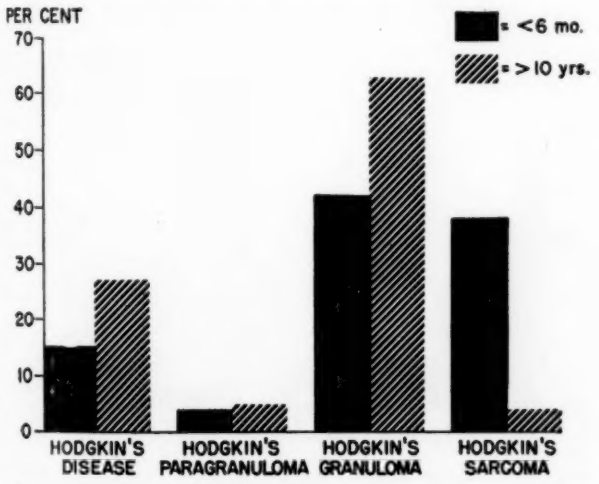

Fig. 2.—Confirmed diagnoses of disease by initial tissue biopsy.

short-term survivor and in seven of the long-term patients. Recent upper respiratory tract infection was noted in five and eight, respectively, in the two groups, and history of a major allergy in two and six, respectively. Other recent disease, including measles, and a history of typhoid fever, malaria, tuberculosis, tuberculosis contact, diabetes mellitus, and herpes zoster was also noted, but in none was such a history obtained sufficiently frequently to be of statistical significance. Administration of desiccated thyroid hormone with or without objective evidence of thyroid disease was recorded but could not be shown to be a significant etiological factor.

SYMPTOMS

Symptoms When Patients Were First Seen.—The majority of the patients in the short-term survivor group had symptoms when they were first seen at Memorial Center. Twenty-three per cent had fever, 23% had pruritus, 19% had cough, 19% had weakness and fatigability, 15% complained of dyspnea, 8% had nausea with or without vomiting, and 4% stated they had night sweats. Fifteen per cent of the long-term survivors had weakness and fatigue, 14% complained of cough, 12% night sweats, 10% fever, 2% pruritus, and 1% dyspnea. Only 19% of the short-term patients had none of the above symptoms as contrasted to 63% of the long-term survivors.

First Physical Examination.—Table 1 shows the physical findings in the two groups. A statistically significant higher incidence of occurrence is noted in the left upper

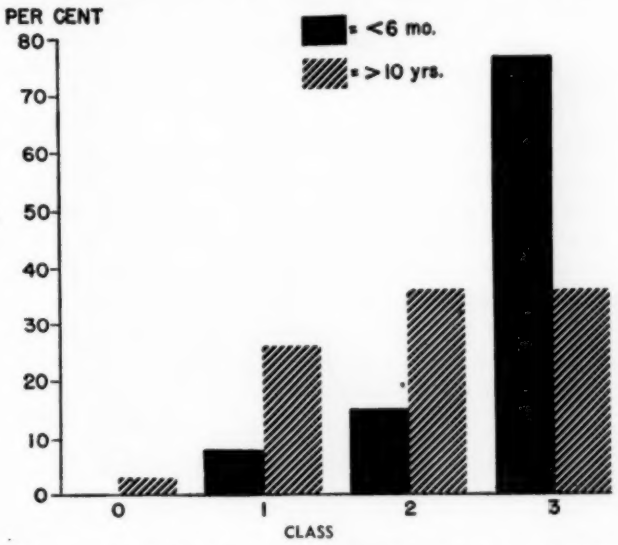

Fig. 3.—Class of disease in patient when first seen at the Memorial Center (for clinical classification, see text).

cervical nodes of the long-term survivors and in the right axillary nodes, spleen, abdominal nodes, and right and left inguinal nodes and of pleural effusion, jaundice, and edema in the short-term survivors ($p<0.05$). There is no statistically significant difference between the other sites of involvement in this group of patients.

First Laboratory Examination.—The initial hemoglobin level as recorded on the hospital chart is shown in figure 4. In the short-term survival group, the hemoglobin level ranged from 7.1 to 14.6 gm. per 100 cc. with a median of 11.2 and an average of 10.9 gm. In the long-term survival patients, the range was 6.1 to 16.9 gm. with a median of 11.2 and an average of 11.1 gm. Thus there was no statistically significant difference between these two groups. The initial red blood cell count recorded in the short-term group of patients ranged from 2,800,000 to 4,800,000 per cubic millimeter with a mean of 4,000,000 and an average of 3,400,000, while in the

long-term survivors the range was from 2,900,000 to 5,000,000 with a mean of 4,100,000 and an average of 3,900,000. These groups, then, are again practically identical. The white blood cell count when the patients were first seen at Memorial Center is shown in figure 5. There are instances of leukopenia as well as leukocytosis in both the long-term and the short-term groups, although there is a higher incidence of both leukopenia

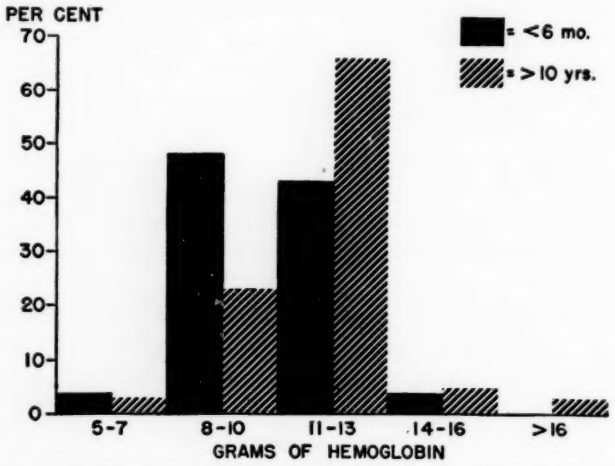

Fig. 4.—Initial hemoglobin level as recorded on hospital chart, in grams per 100 cc.

and leukocytosis in the latter patients. In the short-term group the white blood cell count ranged from 3,400 to 37,600 per cubic millimeter with a median of 8,800 and an average of 12,000, while in the long-term survivors the range was 3,400 to 21,600 with a median of 8,500 and an average of 9,200.

Although eosinophilia is a commonly mentioned sign of Hodgkin's disease, by far the majority of our patients

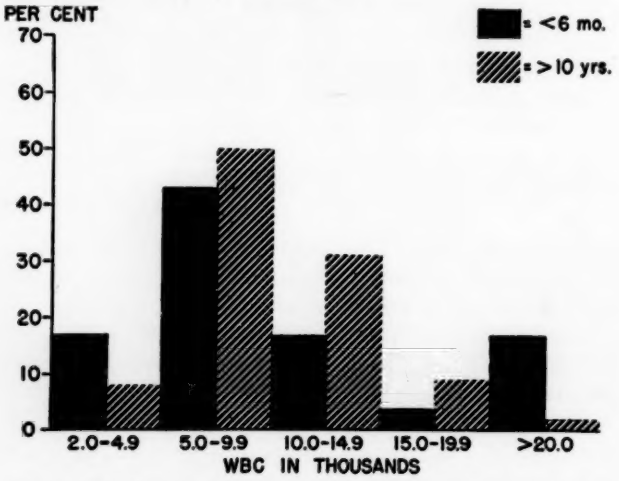

Fig. 5.—Initial white blood cell counts of patients as recorded on hospital chart, in thousands per cubic millimeter.

had a normal percentage of eosinophils found in the routine peripheral blood smear, and no prognostic significance could be determined from either the presence or absence of eosinophils (fig. 6).

Figure 7 shows the percentage of lymphocytes recorded from the routine peripheral blood smear performed when the group of patients was first seen at Memorial Center. The patients having a low percentage of lymphocytes were the same patients who had a leukocytosis with a shift to the left. The absolute lymphocyte count was within the normal range. Therefore no special

TABLE 1.—*Percentages of Patients Who Had Physical Signs When First Seen at Memorial Center*

	Patients Who Survived Less Than Six Months	Patients Who Survived More Than 10 Years After Positive Biopsy Was Noted
Left upper cervical nodes	15	40
Right upper cervical nodes	46	37
Left lower cervical nodes	35	52
Right lower cervical nodes	54	44
Mediastinal nodes	54	31
Pulmonary infiltration	12	3
Left axillary nodes	35	26
Right axillary nodes	62	26
Splenomegaly	42	11
Hepatomegaly	23	7
Abdominal nodes	27	11
Left inguinal nodes	38	10
Right inguinal nodes	31	8
Nodes in other areas	8	7
Gastrointestinal tract	0	1
Pleural effusion	19	1
Bone	0	1
Skin	12	4
Edema	19	3
Jaundice	8	0
Ascites	8	1

significance can be attached to this finding. The percentage of monocytes was within normal limits in the majority of the patients, with a few patients having monocytosis (fig. 8). When the monocytic-lymphocytic ratio was compared, both the groups had about an equal percentage of patients whose ratios were in the normal range. The increased monocytic-lymphocytic ratio is not significantly different between the groups (fig. 9). Plate-

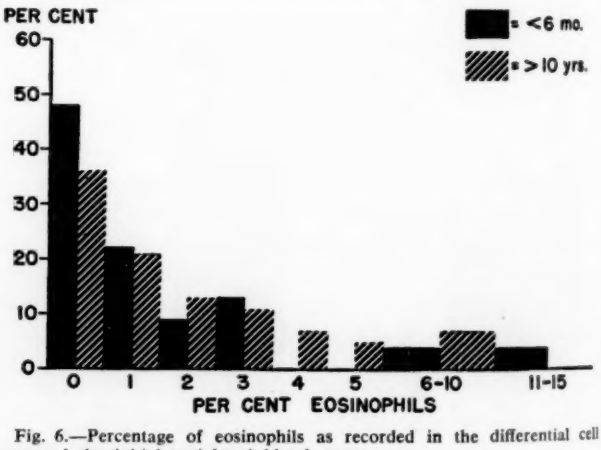

Fig. 6.—Percentage of eosinophils as recorded in the differential cell count of the initial peripheral blood smear.

let counts and sedimentation rates were performed in an insufficient number of cases to permit analysis. There was no significance in the Wassermann or Mazzini reaction.

TREATMENT

Treatment Prior to That Given at Memorial Center.—There was no statistically significant difference between the two groups in the treatment received prior to referral

to Memorial Center. Of the short-term survivors 15 had no treatment, 9 had varying amounts of x-ray treatment to varying numbers of portals, and 2 had supportive therapy. In the long-term survivors 40 patients had no previous treatment, 26 had varying amounts of x-ray therapy, 2 had supportive therapy only, and 7 had other miscellaneous therapy.

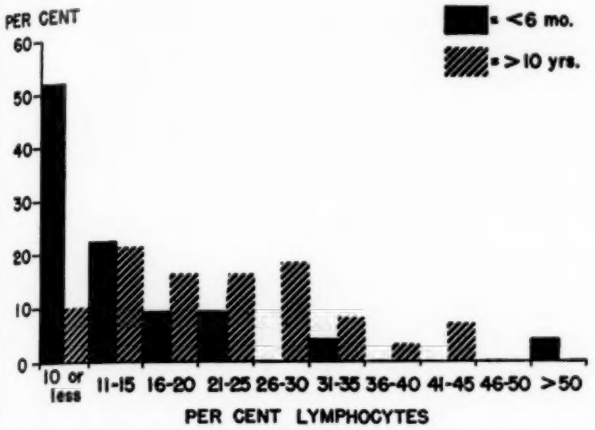

Fig. 7.—Percentage of lymphocytes as recorded in the differential cell count of the initial peripheral blood smear.

Treatment at Memorial Center.—Fourteen of our patients with short-term survival were given x-ray therapy only, and seven patients had x-ray treatment plus chemotherapy, radium, or Heublein total body x-ray therapy. Four patients lived such a short time after first being seen that no specific treatment could be given. One patient received experimental chemotherapy. Of the long-

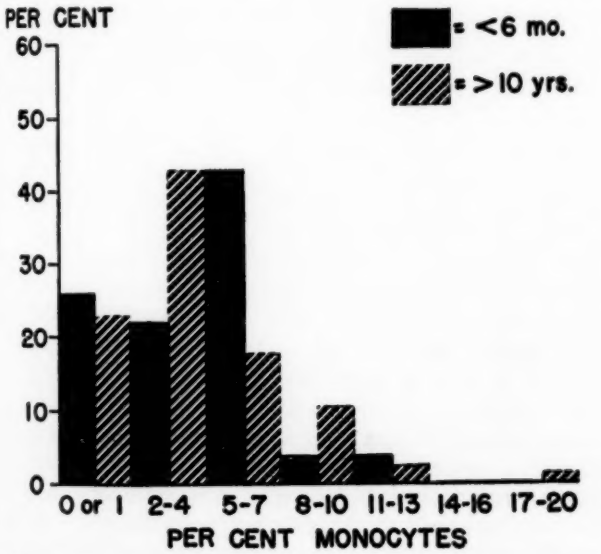

Fig. 8.—Percentage of monocytes as recorded in the differential cell count of the initial peripheral blood smear.

term survivors two patients were free of evidence of disease when first seen at Memorial Center and have received no further treatment. The remaining 71 patients received x-ray therapy; 43 had x-rays alone and the remaining patients had x-ray therapy plus some other type of treatment. Surgery was performed in 3 instances, chemotherapy given in 16, radium in 9, phosphorus 32 on 1 occasion, and Heublein total body x-ray therapy in 8 instances. The short-term survivors had an average of 4 x-ray portals prescribed with a range of 1 to 25 portals, while the long-term survivors had a mean of 10 portals of x-rays with a range of 1 to 65 portals. The short-term survivors had a mean of one course of x-ray therapy with a range of 1 to 4, while the long-term survivors had a mean of 7 courses of x-ray therapy with a range of 1 to 40 courses. Treatment days ranged from 4 to 49 in the short-term group and 6 to 258 days in the long-term group. The total x-ray dose in the short-term group varied from less than 1,000 r (given to three patients) to between 10,000 and 15,000 r (given to one patient). The dose range in the long-term survivor group was less than 1,000 r in two patients to as much as 55,000 r in one patient.

END-RESULTS

The end-results in these patients are shown in table 2. In the short-term survivor group all died of Hodgkin's disease. Of the long-term survivor group, 29 patients

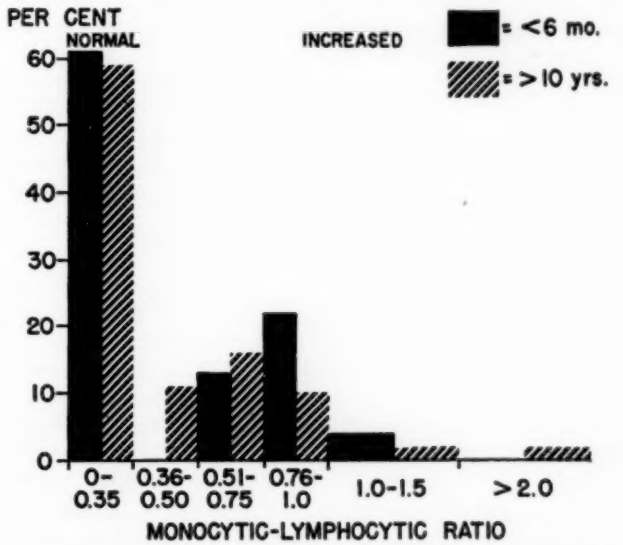

Fig. 9.—Monocytic-lymphocytic ratio as determined from the initial differential count of the white blood cell count.

died from 10 to 15 years after biopsy proof of their disease. Twenty-five patients of this group died of Hodgkin's disease, one patient died of other causes with no evidence of Hodgkin's disease found at autopsy, one patient died of other causes but Hodgkin's disease was present, and two finally died of other causes and it was not known whether Hodgkin's disease was present. There are 17 patients living 10 to 15 years after their disease had been proved, 11 of whom show no evidence of activity of Hodgkin's disease at the time of this study. Ten patients have died more than 15 years after their disease had been established; eight of these died of Hodgkin's disease, and in one patient who died of other causes it was unknown whether Hodgkin's disease was present. Of the 17 patients living more than 15 years after their diagnosis had been established, 11 have no evidence of activity of their disease and 4 are living with Hodgkin's disease present. One patient has been lost to follow-up, and in one it is unknown whether Hodgkin's disease is present.

COMMENT

The data presented again emphasize the difficulty in determining the prognosis in any given case of Hodgkin's disease. While the number of cases in either group is too small to permit complete statistical evaluation, certain conclusions can be made and compared with the available literature.

While accurate tissue diagnosis is necessary for adequate evaluation of Hodgkin's disease, the diversity of the disease must be kept in mind constantly. It is known that different nodes from the same patient may show wide variations in histopathology, and even different portions of the same node may vary greatly in structure. Cognizance of this fact prevents the strict prognostic significance attributed to the tissue diagnosis as advocated by Bersack [1] and by Jackson and Parker,[2] who have emphasized that Hodgkin's paragranuloma has a relatively favorable prognosis but that Hodgkin's sarcoma has a very poor outlook. While such a statement may be generally true, it cannot be applied to an individual case, and others have reported similar observations.[3] Perhaps this question is best summarized by the statement, ". . . of bad omen, in general are . . . a biopsy diagnosis of sarcoma, provided the course within a few months reveals corresponding aggressiveness of the disease . . . and evidence of rapid advance of the disease, regardless of the histopathology of a node biopsy. . . ." [4]

Unicentric disease,[5] especially with early treatment,[6] and marked enlargement of external nodes before treatment [7] have been considered to be favorable signs, while disseminated disease, especially of the viscera,[8] and inguinal node involvement [1] have been designated as unfavorable. Over two-thirds of our long-term survivors did not have localized disease; in fact, about one-third had generalized disease including cases of pulmonary, hepatic, splenic, bone, gastrointestinal, and abdominal node involvement. It is to be emphasized that widespread generalized disease does not necessarily signify a poor prognosis, and, with adequate and aggressive therapy, a certain number of long-term survivals will result.

Persons of either extreme of age are stated to have a poor prognosis.[9] While our data show that a number of older patients have died within a short time after the first symptom of their disease, a number of long-term survivors exist in both extremes of age.

There is general agreement that Hodgkin's disease is more common in males than in females in all age groups, and several reports have indicated that the prognosis is better in women.[10] It is interesting to note that of the 13 women in the short-term group, only 3 were actively menstruating when first seen. Of the long-term survivors, there were slightly more men than women, but when one considers the much larger group of men in the total series of 1,000 patients, this loses any statistical significance.

In the literature considerable prognostic significance has been attributed to the blood cell count. The absence of marked changes in the blood cell count,[11] normal or increased lymphocyte count,[7] monocytosis,[12] or an increased monocytic-lymphocytic ratio [12] have been designated as favorable prognostic signs. Allegedly unfavorable signs include a markedly abnormal blood picture,[4] anemia,[13] leukocytosis,[14] leukopenia,[15] eosinophilia,[5b] leukocytosis with eosinophilia,[5b] lymphocytosis,[9d] and lymphopenia.[16] Our data fail to support any of these contentions, for there was no statistically significant difference between the two groups in reference to any of these factors. The lymphocytosis or lymphopenia seemed to vary inversely to the polymorphonuclear percentage and the total white blood cell count without having any particular significance in itself.

In regard to therapy, the short-term survivors did not live long enough to have much treatment, either in the total number of portals, number of treatment days, or the total roentgen doses received, and they did not respond to treatment. As might be expected, a few of the long-term group responded dramatically to a small amount of irradiation to localized disease. Even more dramatic was a larger group who were first seen with generalized disease including involvement of lung, pleura, gastrointesti-

TABLE 2.—*End-Results of Disease in Cases Studied*

	Less Than 6 Mo.	More Than 10 Yr.	Dead 10-15 Yr.	Living 10-15 Yr.	Dead >15 Yr.	Living >15 Yr.
Dead, no evidence of Hodgkin's disease	..	2 (3%)	1	..	1	..
Dead of Hodgkin's disease	26 (100%)	33 (45%)	25	..	8	..
Dead, other causes, Hodgkin's disease present	..	1 (1%)	1	..	..	..
Dead, other causes, unknown if Hodgkin's disease present	..	3 (4%)	2	..	1	..
Living, no evidence of Hodgkin's disease	..	22 (30%)	..	11	..	11
Living, Hodgkin's disease present	..	10 (14%)	..	6	..	4
Living, unknown if Hodgkin's disease present	..	1 (1%)	..	..	..	1
Lost to followup, no evidence of Hodgkin's disease	..	1 (1%)	..	..	..	1
Total	26	73	29	17	10	17

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nal tract, skin, liver, spleen, abdominal nodes, and had abnormal peripheral blood cell counts who, after many courses of therapy to multiple sites for periods up to three years, finally achieved prolonged remission of disease and have remained happy, useful citizens.

SUMMARY AND CONCLUSIONS

Study of patients with proved Hodgkin's disease with short and long survival periods showed that clinically detectable factors, namely age, sex, race, color, marital status, family history, personal history, extent of disease, symptoms, presenting physical examination, and laboratory aids are not reliable prognostic signs. Despite such unfavorable signs as generalized disease, constitutional symptoms, Hodgkin's sarcoma, or an abnormal blood picture, carefully planned therapy persistently pursued may result in prolonged survivals.

444 E. 68th St. (Dr. Finkbeiner).

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14. Haden and Burns. [13b] Sturgis. [8b]

15. Hoster and others. [13c] Sturgis. [8b]

16. Hoster and others.[13c] Wiseman. [12]

EXPOSITION AS APPLIED TO MEDICINE

A GLANCE AT THE ETHICS OF IT

Richard M. Hewitt, M.D., Rochester, Minn.

Physicians are under obligation to teach, and teaching is done largely by means of the printed page. When I chose medical editing as my full-time contribution to that educational effort, I entered an occupation that W. Albert Noyes Jr. recently said is a way to lose old friends and to make no new ones. True enough, an editor is paid to find fault. The faultfinding here, however, will be broadly based. First in work on THE JOURNAL of this association, and later in war work supported by my present organization, I read thousands of manuscripts that originated in places situated throughout the United States. I aim, then, at no person, at no group, but at certain writing practices that, springing from innocent motives, finally have beset members of the medical profession.

TO REFRAIN FROM PUBLICATION

We of that profession are beset most of all by the great volume of material we must read. In the autumn of 1953, Mary E. Grinnell,[1] head of the reference section of the Armed Forces Medical Library, obtained from Jacqueline Chambers, one of her staff, the information, "at best an estimate," that there were "4512 medical journals in the world, and 1439 in the United States alone." The research from which these figures resulted was "carried on in connection with the Welch Medical Library Indexing Project, Johns Hopkins University." Included in the totals were "only substantive journals containing original articles and not news bulletins, reprint journals and the like." This situation has been growing worse, and the current remedy seems to resemble that of the man who borrows to get out of debt. We are producing still more pages to read. Abstracts, digests, and collective reviews augment the encumbering glut.

We physicians have not handled our own affairs in this matter. We could handle them as scholars have done. The scholars went for the individual producer, and they said, in effect: "Except for the writer of what may be called an 'occasional piece,' he who effects publication in a learned journal of an article by himself, which neither contains anything new nor sheds new light on anything old, performs an unethical act and may expect it to be remembered to his discredit." If we would define publication of unoriginal, repetitious medical material as a violation of medical ethics, and would officially reprove it as such, the tawdry author would be silenced and the genuine one helped. A man of the latter type, having something noteworthy to say, may justifiably say it half a dozen times in as many months, but he would prefer to publish only once. If he were protected by the declaration of his medical society that multiple publication would lay him open to the charge of unethical conduct, he would be furnished with an effective reply to importunate persons who feel that "everything" must be printed, even if publication of unnecessary material is paradoxically necessary to that end. For that matter, "Johnson was by no means of opinion," wrote Boswell,[2] "that every man of a learned profession should consider it as incumbent upon him . . . to appear as an author." What would the forthright old man have had to say of the professional man who appeared as an author even though he had not the full right of authorship?

TO BE IN TRUTH AN AUTHOR

Authorship cannot be conferred; it may be undertaken by one who will shoulder the responsibility that goes with it. To a responsible writer, an article, with his name on it, is the highest product of his mind and art, his property, as nearly flawless as he can make it, founded in his character and evidence of it. If that describes the acceptable standard, medical writers, a responsible group, are in present need of reconsidering the implications of joint authorship. The reader of a report issued by two or more authors has a right to assume that each author has some authoritative knowledge of the sub-

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The Mayo Foundation is a part of the University of Minnesota.

1. Grinnell, M. E.: Personal communication to the author.

2. Boswell, J.: The Life of Samuel Johnson LL.D., London, England, J. M. Dent & Sons Ltd., and New York, E. P. Dutton & Co., Inc. Everyman's Library, reprinted 1914, vol. 2, p. 133.

ject, that each contributed to the investigation, and that each labored on the report to the extent of weighing every word and quantity in it. And when, of two authors, one is a junior investigator and the other a senior, who acted as adviser in the work, the reader is reasonably safe in his assumption. Such a seasoned investigator has a reputation to maintain. He would be expected to slog at an article that was to appear under his name, at least to the extent of being uncompromisingly critical of another's part in it.

The by-line, then, is not merely a credit-line. He who took some part in the investigation, be it ever so minor, is entitled to credit for what he did. If, however, any one of the reader's assumptions mentioned above cannot be applied to such a one, the credit due him, be it ever so major, does not justify his inclusion as an author. His contribution should be acknowledged in the body of the paper or, if the publisher can be induced to print it, in a footnote. Further, the generous chap who would bestow authorship on another, perhaps without even submitting the manuscript to him, may do his colleague no favor. For the investigation is one thing, the report of it another, and, sad the day that this must be admitted: The investigation may have been excellent but the report, bad.

TO QUOTE WITH CREDIT

The physician, who himself guards no trade secrets, may become careless about other abstract property rights, such as the right of authors to their own words. He shares with others a common foundation in the liberal arts. Often, however, although he has built the sciences of that foundation upon a rock, he has allowed the humanities of it to rest upon the sand (Matthew VII: 24 and 26). Thus, he may not have bothered his head about instruction such as is given in an annually printed publication of one liberal arts college. Almost a page of this publication is occupied by some paragraphs headed "plagiarism." The term is defined, and the use of quotation marks is explained. The concluding sentences are [3]: "Since all of us necessarily adopt and absorb the ideas of others, we must be scrupulous in maintaining the spirit of acknowledgment to others. Fundamentally, your integrity is at stake. Unless you make specific acknowledgment, you claim the credit for yourself for anything that you write. In general, it is better to say too much about your sources than too little." That is meant especially for freshmen. The seed is sown early.

Then where lay the remissness in the education of the physician who submitted a manuscript to an editor of my acquaintance? The editor found that the effective opening sentence had been also the opening sentence of an article cited by the author of the manuscript. By one of the coincidences of life, I knew the author of that manuscript. He is dead, which accounts for the past tense. I believe him to have been strictly honest. He was the possessor of an advanced medical degree and the recipient of a noteworthy medical honor conferred on him in a foreign land. He was the best of the system that had produced him. Yet, apparently, he believed that to give a reference at the end of his own article entitled him to use, without quotation marks, the words of another. When the editor took him to task for his defection, the author replied that he thought he had followed standard practice. The worst of it is that in medical printed matter there can be found basis for his belief.

As for uncredited paraphrase, it is only necessary to quote again from the college publication that has been mentioned: "If you imitate the language or thought of some one else, you are paraphrasing: that is, you are restating another's thought in your own language. In such cases you may omit the quotation marks. However, unless you specify in a footnote the source of the thought, you are plagiarizing." To pursue this subject one step further: The author who paraphrases or refers to an article should have read it.

TO READ WHAT IS CITED

Often the physician refers to an original work that he has not consulted; he has read an abstract or a paraphrase in the work of another author. The physician's motive is excellent. He thinks that since he has the reference to the cited author's original work the reader may as well be given it. If the reference is inexact, however, the author has not helped the reader, and if the quotation or paraphrase is erroneous he is unfair to the original author and unjust to himself. The honest thing to do, and the safe thing for him, is by some accepted method to refer to what he actually read and to insist that the reference be printed. Since the author of a manuscript himself may err, the chance of inaccuracy is increased by one more than as many intermediaries as lie between him and his source. In this connection, Samuel Johnson again comes to mind. Boswell quoted him thus [4]: "It is amazing, Sir, what deviations there are from precise truth, in the account which is given of almost every thing." Yes, a writer cannot trust anyone, not even himself.

TO EMPLOY "DUE DILIGENCE AND CARE"

The responsible author does his utmost to minimize his own unworthiness. He writes not to show off but to tell what his reader wishes and needs to know. What the author releases springs not so much from pride as from a sense of duty. When he sets down an unqualified declaration in black and white, under or over his name, therefore, it means that, within reasonable bounds, he is sure of it. Consequently, just as he repeated the work on which the paper was based, in order to be certain of his data, so will he confirm, confirm again, and cross confirm the contents of his article. He will see that a definition given in one part of it is not violated in another part; that his tables, graphs, and text agree; that established categories are not mixed; and that his arithmetic is sound. In his writing, then, as in his practice, he will live up to that dread requirement that he exercise "due diligence and care." Or, if the figurative language of the folkways is preferred, his story is not "cut out of the whole cloth" but is "all wool and a yard wide."

THE MEDICAL EXPOSITOR'S TEN COMMANDMENTS

An attempt to summarize the foregoing thoughts might take one of several forms; but ethical concepts probably never have been presented more memorably than in the Ten Commandments. I inquired of several persons

3. Wesleyan University Bulletin, Middletown, Conn., Campus Directory and Regulations Number, 1953-1954, vol. 47, p. 68.
4. Boswell,[2] p. 286.

whether adopting that hallowed form for my purposes would give offense. I was reassured. Therefore, may I submit 10 commandments for the medical expositor, and consider them, please, always with the realization that an exceptional circumstance may make one or another of them inapplicable:

1. Thou shalt not, unless circumstances be extraordinary, release for publication a paper that neither contains anything new nor sheds new light on something old.

2. Thou shalt not allow thy name to appear as a coauthor unless thou hast some authoritative knowledge of the subject concerned, hast participated in the underlying investigation, and hast labored on the report to the extent of weighing every word and quantity therein.

3. Thou shalt not fail to place within quotation marks the words of another, nor shalt thou fail to verify the accuracy of thy quotations.

4. Thou shalt not consider that to alter the words of another frees thee from the obligation to credit that other with an idea that thou hast borrowed from him.

5. Thou shalt not publish a reference in such manner that the reader will think thou hast read a certain article if thou hast read only an abstract or paraphrase thereof.

6. Thou shalt not write to please thyself but to meet the needs of thy reader.

7. Thou shalt not publish, as if thou wert sure of it, that of which thou art not sure.

8. Thou shalt not allow one part of thy paper to disagree with another part thereof.

9. Thou shalt not mix categories.

10. Thou shalt not fail to verify, again and yet again, thy arithmetic.

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CORTISONE AND HYDROCORTISONE GIVEN PARENTERALLY AND ORALLY IN SEVERE TETANUS

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Although tetanus is rarely encountered in temperate zones, it remains quite common in tropical areas. In India, where patients may not report for treatment until late in the course of the disease, the mortality is high, varying between 46 and 56%.[1] Since the discovery of immunoprophylaxis and immunotherapy about 50 years ago there has been little further advance in the treatment of clinical tetanus save perhaps for the introduction of penicillin and tracheotomy [2] as prophylactic measures against complications of the disease.

It is well known that the severity of tetanus can be estimated from the period of incubation, time between injury and first symptom, and from the period of onset, time between the first symptom and the development of convulsions. When the incubation period is less than seven days or when the period of onset is less than 48 hours, there is little chance of recovery. In a series of 43 patients given excellent treatment,[3] only 1 patient (a baby) survived with an onset period of less than 48 hours, and only 2 patients survived with an incubation period of less than seven days (with incubation periods of five and six and three-fourths days).

Animal experiments have shown that injections of desoxycorticosterone and cortisone do not favorably affect the course of tetanus infection or the prognosis after the administration of tetanus toxin.[4] Corticotropin was found to be unable to prevent the lethal action of large doses of tetanus toxin in mice.[5] Cortisone injections have been given to one patient with tetanus who was suffering from an allergic reaction to antiserum rather than from the infection [6] and to one other patient who was treated by conventional methods and tracheotomy as well.[7] From the animal experiments and from these two cases it is not possible to draw any conclusion concerning the action of cortisone in clinical tetanus.

Recently we have published a controlled study on severe cases of tetanus in which half of the patients were given a continuous intravenous infusion of corticotropin in doses of about 20 mg. a day. This treatment was associated with a reduction in fever, tachycardia, and respiratory distress and with an amelioration of the muscular rigidity as well as a dimunition in the frequency and severity of convulsions.[8] In general the clinical course was milder and shorter when corticotropin was given. The reduction in mortality was considerable but not of statistical significance. Most of the patients with

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The cortisone and hydrocortisone used in this study were supplied by Schering Corporation, Bloomfield, N. J., and Merck Co., Rahway, N. J.

1. (*a*) Ghosh, S. M.: Tetanus—Its Management, J. Indian M. A. **19**: 328-330 (June) 1950. (*b*) Sahiar, N. K.: Some Observations on Tetanus, Indian Physician **3**: 120-128 (April) 1944. (*c*) Yodh, B. B.: Further Observations on the Treatment of Tetanus, Brit. M. J. **1**: 855-857 (April 24) 1937.

2. Godman, H. E., and Adriani, J.: Management of Patients with Tetanus: Some Clinical Experiences with Various Muscle-Relaxing Agents, J. A. M. A. **141**: 754-756 (Nov. 12) 1949.

3. Cole, L.: The Prognosis of Tetanus, Lancet **1**: 164-168 (Jan. 27) 1940.

4. Greene, A. E.; Ambrus, J. L., and Gershenfeld, L.: Effect of Cortisone and Desoxycorticosterone on Infection with Tetanus Spores and on the Toxicity of Tetanus Toxin, Antibiotics & Chemother. **3**: 1121-1124 (Nov.) 1953.

5. Spector, S., and Mercer, R. D.: The Effect of Pituitary Adrenocorticotrophic Hormone on Experimental Tetanus in Mice, J. Infect. Dis. **89**: 224-225 (Nov.-Dec.) 1951.

6. Scheinberg, L. C.: Tetanus Treated with Cortisone, U. S. Armed Forces M. J. **3**: 1377-1381 (Sept.) 1952.

7. Christensen, N. A., and others: Cortisone in the Treatment of Tetanus: Report of a Case, Proc. Staff Meet., Mayo Clin. **27**: 28-32 (Jan. 16) 1952.

8. Lewis, R. A., and others: Corticotropin (ACTH) in Severe Tetanus, Indian J. M. Sc. **8**: 1-14 (Jan.) 1954.

fatal cases succumbed in the first 48 hours, before corticotropin could exert its maximum effect; in fact none of the patients treated with corticotropin succumbed after 48 hours of treatment had been completed.

Subsequently we attempted a combination of corticotropin and cortisone but experienced some difficulty in the regulation of dosage.[9] However it was noted that those patients who received cortisone by the oral route fared better than those who were given the hormone by injection. With these observations in mind a new series of cases was begun in which 20 control patients were alternated with 20 patients receiving hormone. Of the latter there were 5 who received cortisone intramuscularly, 10 who were given cortisone by mouth, and 5 who received hydrocortisone by mouth. These 40 patients serve as a basis for the present report.

TABLE 1.—*Patients Treated According to Conventional Methods (Control)*

Case, No.	Age, Yr.	Sex	Type of Injury	Incubation Period, Days	Onset Period, Hours	Course on the Ward
1	12	M	Contusion	7	14	Spasms not controlled
2	25	F	Contusion	14	20	Temperature 106 F; spasms worse
3	14	F	Puncture	12	48	Temperature 104 F; spasms worse
4	4	F	Otorrhea	?	24	Spasms worse; pulmonary edema
5	15	M	Contusion	6	21	Fever and cardiac failure
6	12	M	Puncture	12	24	Spasms worse; pulmonary edema
7	24	M	Contusion	9	16	Severe, uncontrolled spasms
8	8	M	Pig bite	7	20	Spasms worse; respiratory failure
9	30	F	None	..	6	Temperature 104 F; spasms worse
10	4	F	Ulcer	15	24	Temperature 103 F; spasms worse
11	38	M	Contusion	8	36	Spasms worse; pulmonary edema
12	40	M	None	..	24	Spasms worse; pulmonary edema
13	10	M	None	..	45	Recovered
14	25	F	Abortion	4	15	Temperature 105 F; respiratory failure
15	11	F	Otorrhea	7	25	Circulatory shock
16	8	M	Contusion	9	16	Recovered
17	30	M	Puncture	14	24	Temperature 104 F; spasms worse
18	10	F	Puncture	7	72	Recovered
19	10	M	Contusion	2	12	Temperature 103 F; spasms worse
20	24	F	Puncture	7	48	Temperature 104 F; spasms worse

CLINICAL PROCEDURE

The criteria for the selection of severe cases and the basic treatment given to all patients were the same as in the previous study.[8] From the patients admitted to the tetanus ward, only those with the severest disease were selected for the series. When at least four out of five of the following conditions were satisfied, the case was considered to be severe: marked trismus; generalized convulsions; an incubation period of seven days or less (the time between injury and trismus); a period of onset of 48 hours or less (the time between the occurrence of trismus and spasms); or a rectal temperature of 100 F (within 24 hours of the patient's admission or 48 hours from the beginning of convulsions). One patient with severe burns was excluded from the series because the injury itself determined the final outcome.

As soon as the diagnosis was settled, adults were given 1 cc. of epinephrine, 1/1,000 and 1/100 grain (0.06 mg. and 0.6 mg.) of atropine followed by the intramuscular injection of 120,000 units of antitetanus serum. Penicillin, 200,000 units, was given twice a day until normal temperature persisted. A second intramuscular injection of serum was made after 24 hours. To relieve spasms 4 to 8 cc. of paraldehyde was injected intramuscularly as required. Occasionally 10 cc. of a 10% solution of mephenesin in 25% glucose was given to facilitate therapeutic procedures. Urinary retention, pulmonary edema, and high fever were treated by conventional methods, and a simple enema was given on alternate days. Children were given proportionately smaller doses of the same drugs.

Alternate patients in the series were given adrenal hormone therapy. The first 5 received cortisone by intramuscular injection; the next 10 patients were given cortisone by mouth, and the last 5 were given hydrocortisone orally. One of the patients in the last category received both hydrocortisone and cortisone. Insofar as it was possible, the dose of hormone used was that amount that appeared to be just sufficient to counteract or prevent a rise in the temperature.

Eosinophil estimations were performed on capillary blood by direct count after appropriate staining.[10] We have kept a record of the vital signs, the distance between the teeth when the mouth was open to the maximum extent, and the severity of convulsions. For charting we have used the signs 1 to 4+ to indicate the severity and frequency of generalized spasms.

RESULTS

From Oct. 6, 1953, to Feb. 9, 1954, there were 103 patients admitted to the tetanus ward (excluding tetanus neonatorum). Six patients left the ward against medical advice, and one was found to be suffering from rabies. From the remaining 96 only 40 were classified as severe and 56 either did not fit into this classification or had a complicating condition that prejudiced the outcome. Among the 40 patients selected for further study, all had either an incubation period of 7 days or less, or an onset period of 48 hours or less, while 7 of the controls and 8 of the treated patients had both. There was one case of puerperal tetanus in the control series and one in the treatment series. There were three patients with no injury in the control series and three such patients in the treatment group. A general picture of the case material can be obtained from inspection of tables 1 to 4, which give the age and sex of the patients, the type of injury, the incubation and onset periods, and the clinical course.

The clinical course of many of the patients given hormone therapy was quite different from that of those who received conventional treatment alone. Among the controls a rising temperature was usual, (cases 9 and 17, table 1), while among the patients treated with cortisone this was less frequent (case 14, table 3). Even in the controls who recovered there was a hectic febrile period (case 13, table 1) while among the hormone-treated patients this was less prominent (cases 8, 12, and 13, table 3).

9. Lewis, R. A., and others: Unpublished data.
10. MacFarlane, J. C. W., and Cecil, G. W.: Eosinophil Counting: Modification of Pilot's Method, Brit. M. J. 2: 1187-1189 (Nov. 17) 1951.

Rising temperature was usually associated with a rise in pulse leading to pulmonary edema or with more frequent spasms requiring larger doses of paraldehyde eventually leading to respiratory failure. In general, when fever was controlled, the patient survived, although death occurred in two patients after fever had been brought under control with cortisone given orally (case 9, table 3) or injected cortisone (case 4, table 2).

TABLE 2.—*Patients Treated Intramuscularly with Cortisone*

Case, No.	Age, Yr.	Sex	Type of Injury	Incubation Period, Days	Onset Period, Hours	Course on the Ward
1	5	F	Otorrhea	?	30	Temperature 105 F; pulmonary edema
2	5	F	Contusion	3	14	Spasms worse; respiratory failure
3	13	M	Puncture	15	31	Temperature 102 F; spasms worse
4	24	F	Contusion	14	1	Fever controlled; spasms worse
5	2	M	Puncture	5	5	Temperature 103 F; spasms worse

When fever was controlled through the oral administration of cortisone or hydrocortisone, spasms were less frequent and less severe so that the dose of paraldehyde could be kept at a moderate level. However, when cortisone was administered by injection, the intensity and frequency of spasms seemed to be exaggerated, and this impression is confirmed by the early demise of these cases.

As previously noted in patients treated with corticotropin, reduction in dosage or discontinuance of therapy late in the course was occasionally followed by a short relapse with fever and an aggravation of the muscular rigidity and spasms (case 8, table 3). When a patient's temperature rose during hormonal therapy, an increased dose usually prevented further rise (cases 8 and 13, table 3), but even 350 mg. per 24 hours did not control the fever in one case (case 14, table 3). Best results were obtained when it was possible to start hormonal therapy early in the course of the infection (case 13, table 3). On the other hand, when hormonal therapy was delayed due to late arrival of the patient or uncertainty as to whether the criteria for severity would be fulfilled (case 19, table 4), the results were less satisfactory.

The very mild course exhibited by several patients treated orally with cortisone, such as in case 12 (table 3), might suggest that these did not really have severe disease, even though rigorous criteria were applied in their selection. However, in case 8 (table 3), such a mild course was the result of hormonal therapy, for, when the dose of cortisone was reduced in this patient, all the signs and symptoms associated with a severe case appeared and disappeared again when the dose of hormone was increased.

Case 11 (table 3) is especially interesting since puerperal tetanus arising after delivery or abortion is especially serious. Eight similar cases reported from this hospital in 1944 were all fatal.[1b] In the series of patients in whom corticotropin was evaluated, three more cases were reported, the two patients who did not receive hormonal therapy succumbed while the one receiving corticotropin had a stormy course with eventual recovery.[8] Although the patient in case 11 manifested some fever during the course, her general condition remained good and spasms were easily controlled with moderate doses of paraldehyde.

Another patient (case 13, table 3) deserves special attention. This child had a lesion of the right thumb sustained four days prior to admission with development of convulsions within three hours of the first symptoms. On admission opisthotonos and spasms were severe. She required prolonged treatment with relatively large doses of cortisone, but she survived without complications. Her case may be contrasted with the recent report of two children who had incubation periods of four and six days and who were treated with large doses of antiserum, penicillin, thiopental, and gallamine triethiodide and who succumbed in one and three days, respectively.[11]

In table 5 we have gathered together the figures for eosinophil level during the period of hospitalization. It may be noticed that eosinophils were found on the day of admission in only one patient. It is also interesting to note the temporary rise in eosinophil count associated with the temporary relapse in case 8 (treatment), which occurred when the dose of cortisone was reduced.

The duration of hospitalization of patients with fatal disease is given in table 6 for the 40 cases in this series, and 56 patients with milder disease that were hospitalized at the same time, and similar figures for the study on corticotropin in severe tetanus.[8] In the patients

TABLE 3.—*Patients Treated with Orally Administered Cortisone*

Case, No.	Age, Yr.	Sex	Type of Injury	Incubation Period, Days	Onset Period, Hours	Course on the Ward
6	26	M	Abscess	15	30	Recovered
7	25	F	None	..	24	Fever and spasms worse
8	15	M	Puncture	15	34	Recovered
9	50	M	None	..	12	Temperature 101 F; pulmonary edema
10	50	F	Contusion	10	12	Recovered
11	17	F	Childbirth	6	31	Recovered
12	8	M	Puncture	9	30	Recovered
13	6	F	Puncture	4	3	Recovered
14	8	F	Puncture	3	20	Temperature 107 F; respiratory failure
15	4	M	Contusion	5	24	Temperature 105 F; respiratory failure

TABLE 4.—*Patients Treated with Orally Administered Hydrocortisone*

Case, No.	Age, Yr.	Sex	Type of Injury	Incubation Period, Days	Onset Period, Hours	Course on the Ward
16	32	M	Puncture	7	36	Fever and spasms worse
17	8	F	Otorrhea	?	36	Recovered
18	16	M	Contusion	7	36	Temperature 104 F; respiratory failure
19	30	M	Contusion	14	36	Fever and spasms worse
20	10	M	None	..	24	Recovered

treated with corticotropin or orally administered hormone, there was only one death after the first 48 hours and this may have been associated with insufficient dosage of cortisone (case 14, table 3). However, the most interesting result shown in table 6 is the fact that orally administered cortisone was able to prevent some of the deaths that occur in the first 48 hours.

11. McIntyre, J. H.: Treatment of Tetanus, Brit. M. J. 2: 866-867 (Oct. 17) 1953.

In the 20 control patients of this series the number of survivors was 3, while in the group of 10 treated with cortisone orally the number of survivors was 6. Evaluating the statistical significance of this difference by conventional methods we find chi square to be 4.5, which indicates less than a 5% likelihood of the findings being the result of chance.

TABLE 5.—*Eosinophil Count in Severe Tetanus*

Case, No.	Eosinophils per Cubic Millimeter on Each Successive Day After Admission															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Control																
1	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	
2	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	
3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
5	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
6	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
7	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
8	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
9	0	..	0	..	0	..	0	..	0	..	..	..	..	..	..	
10	Not counted				..	..	..	..	..	..	..	..	..	..	..	
11	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	
12	..	0	0	..	..	..	..	..	..	..	..	..	..	..	..	
13	0	..	0	0	..	11	..	66	..	88	..	165	..	..	..	Recovery
14	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..	
15	Not counted				..	..	..	..	..	..	..	..	..	..	..	
16	0	..	0	..	11	44	..	..	..	..	..	..	..	..	..	Recovery
17	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	
18	..	0	..	0	..	44	132	..	..	..	..	..	..	..	..	Recovery
19	Not counted				..	..	..	..	..	..	..	..	..	..	..	
20	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	
Treatment																
1	Not counted				..	..	..	..	..	..	..	..	..	..	..	
2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
3	0	0	..	..	..	..	..	..	..	..	..	..	..	..	..	
4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
5	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
6	33	0	..	55	0	..	0	..	..	77	..	220	..	..	..	Recovery
7	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
8	0	0	0	..	0	..	0	55	0	..	44	..	198	..	..	Recovery
9	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
10	..	..	11	0	0	0	11	..	77	148	..	..	..	..	..	Recovery
11	0	0	..	0	..	0	..	0	0	..	..	0	..	..	22	Recovery
12	0	..	0	..	0	..	0	..	0	..	0	22	..	110	..	Recovery
13	0	0	..	..	0	..	11	..	11	..	22	..	66	187	..	Recovery
14	0	0	..	0	0	..	..	..	..	..	..	..	..	..	..	
15	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
16	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
17	0	..	0	..	0	..	88	..	192	..	..	..	..	..	..	Recovery
18	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	
19	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
20	0	..	0	..	0	..	0	..	..	..	..	..	..	..	..	

REPORT OF CASES

CASE 9 (Table 1).—A widow, aged 30 years, complaining of trismus of 24 hours' duration and spasms for 6 hours was admitted to the hospital. There was no history of injury, otorrhea, or pregnancy, although menses had been irregular for two months. On admission there was generalized rigidity with opisthotonos. Her temperature was 100 F, pulse 120 per minute, and respirations 26 per minute. Routine treatment did not prevent a rising temperature and increasing convulsions. Temperature reached 104, pulse 140 per minute, and respirations 40 per minute. Finally the respirations became irregular, and the patient died seven days after admission.

CASE 13 (Table 1).—A 10-year-old boy was admitted to the hospital because of a stiff jaw that had been present for 24 hours. He had generalized rigidity and exaggerated reflexes. His temperature was 101 F, pulse 128 per minute, and respirations 32 per minute. After the patient was in the hospital 21 hours, opisthotonos and convulsions developed. He was given routine therapy, and both fever and spasms subsided by the 9th day, so that he could be discharged on the 21st day.

CASE 17 (Table 1)—A 30-year-old man was admitted to the hospital because of stiff jaw and spasms. Fifteen days previously he had injured the sole of his right foot on a nail. The spasms came on about 24 hours after the trismus. His temperature was 100 F on admission, with a pulse of 120 per minute, and respirations of 30 per minute. Despite routine treatment the temperature and spasms gradually increased. On the fifth day the patient's temperature reached 104, and he died in respiratory failure.

CASE 8 (Table 3).—A 15-year-old school boy was admitted because of pain in his neck and a stiff jaw of one day's duration. He gave a history of a thorn-punctured lesion of the left foot 15 days before the onset of trismus. He had marked opisthotonos and rigidity on admission, with a temperature of 100 F, pulse of 110 per minute, and respirations of 24 per minute. He was given routine therapy and cortisone by mouth even before the onset of convulsions, which were noted on the ward 34 hours after the first symptoms. While on cortisone therapy, 100 mg. daily, his temperature remained at 98 to 100 F, and symptoms were not severe. On the sixth day in the hospital the dose of cortisone was reduced, and on the eighth day it was stopped. That evening the patient's temperature rose to 103 F, spasms became much worse, trismus was increased, and dysphagia was noted. Cortisone was started again, and symptoms gradually subsided. Urinary retention required catheterization, and there was a small infection of the right thigh. The patient was discharged after 24 days in the hospital. The total dose of cortisone was 837 mg.

CASE 11 (Table 3).—A 17-year-old woman was admitted to the hospital complaining of stiff neck and trismus of 24 hours duration. She had a full-term normal delivery six days before the symptoms developed. Her temperature was 101.4 F, pulse 130 per minute, and respirations 38 per minute. She had generalized rigidity and marked opisthotonos with spasms seven hours after arrival on the ward. She was given routine therapy and oral cortisone. Her temperature fluctuated between 99 and 102 F for the first seven days. She had severe spasms for 5 days and mild spasms until the 15th day. At this time cortisone therapy was stopped. Trismus disappeared after 20 days. A cellulitis of the right thigh cleared without drainage, and she was discharged after 33 days in the hospital. The total dose of cortisone was 3,650 mg.

CASE 12 (Table 3).—This 8-year-old boy was admitted with a history of lockjaw and stiff neck of 24 hours duration and a puncture wound of the sole of the right foot nine days previously. He had marked generalized rigidity and opisthotonos on admission with a temperature of 101 F, pulse of 156 per minute, and respirations of 34 per minute. Spasms developed within 30 hours of the first symptoms, and these remained severe for four days. Temperature dropped to normal, and the spasms became milder by the fifth day. The spasms disappeared on the 12th day and lockjaw on the 15th day. The patient was discharged one month after admission. The total dose of cortisone was 1,250 mg.

CASE 13 (Table 3).—A girl 6 years old was admitted because of stiff jaw and spasms coming on the same day after an interval of only three hours. She had an injury under the right thumb nail four days before becoming sick. On admission opisthotonos

TABLE 6.—*Duration of Hospitalization in Fatal Cases*

Series of Patients	Total Patients	Fatal Cases	Death 1 Day	Death 2 Day	Death 3 Day	Death 4 Day	Death 5 Day+
This Series							
Control	20	17	3	6	3	1	4
Cortisone intramuscularly	5	5	0	3	2	0	0
Cortisone orally	10	4	1	2	0	0	1
Hydrocortisone orally	5	3	1	1	0	1	0
Remaining patients	56	10	4	4	1	0	1
Total	96	39	9	16	6	2	6
Previous Series							
Control	10	7	2	3	0	0	2
Corticotropin	10	4	2	2	0	0	0
Remaining patients	43	7	2	1	1	1	2
Total	63	18	6	6	1	1	4

and spasms were severe. The temperature was 100 F, pulse 110 per minute, and respirations 28 per minute. She had marked opisthotonos and severe spasms. She was given 200 mg. cortisone daily by mouth and then 150 mg. daily, but, when her temperature started to rise, the dose was increased. Then fever and spasms gradually subsided. There was a period of respiratory arrest on the sixth day with spontaneous recovery. Stiffness of the jaw disappeared on the 13th day, and she was discharged on the 25th hospital day. The total dose of cortisone was 1,600 mg.

CASE 14 (Table 3).—A girl 8 years old was admitted to the hospital four days after an injury to the sole of the left foot due to a thorn. She had lockjaw for one day and spasms for four hours before admission. Her temperature was 102 F, pulse 144 per minute, and respirations 34 per minute. She was given 400 mg. of cortisone on the first day in addition to the routine therapy. She improved, and the dose of cortisone was reduced to 200 mg. daily, after which she had a relapse with temperature to 107 F and severe spasms. She died on the fifth day due to circulatory failure. The total dose of cortisone was 1,400 mg.

COMMENT

It appears that the selection of severe cases was quite accurate since only 3 of the 20 control patients in this category recovered, while among the patients excluded from the study there were 46 survivors out of a group of 56. The low eosinophil count observed in the severe cases is consistent, since we had previously noted a correlation between the eosinophil count and severity of the infection.[8] In fact, on this basis the 40 cases in this study were severer than the 20 cases previously reported. This impression is confirmed by the fact that the average period of onset in this series was less than 22 hours, while the average period of onset in the previous series was 43 hours. Although other investigators have paid little attention to fever, we consider that it is an early manifestation of severe tetanus and of serious prognostic importance.[12]

The ability of adrenal hormones to control fever has been demonstrated in a variety of infections, but this does not necessarily indicate a beneficial action, and the use of these hormones may be associated with an acceleration or recrudescence of infection as in the case of tuberculosis.[13] In tetanus we see that cortisone and hydrocortisone like corticotropin were able to control fever in many of the cases, and it would appear that failure to prevent a rise in temperature in some instances was due to insufficient dosage. This suspicion is enhanced by the observation that fever sometimes occurred when the dose of cortisone was reduced and sometimes disappeared when the amount of hormone was increased.

The most surprising observation that can be made in this series of cases is concerned with the difference in the effect of cortisone that is given orally or is injected. Preliminary observations indicated that cortisone given intramuscularly was useful in tetanus when dysphagia was prominent, but the case involved was one that did not progress to the stage of convulsions.[14] Observations made when cortisone injections were given along with corticotropin suggested that such treatment led to an aggravation of convulsions. Nevertheless, five patients were given cortisone by this route in order to test the point. It is noteworthy that the clinical impression was confirmed by the early demise of these cases. On the other hand, when fever was controlled through the oral administration of cortisone or hydrocortisone, the frequency and intensity of spasms was reduced and this effect was noted even in cases in which slight fever persisted. It is plausible that orally administered cortisone is converted into hydrocortisone to a greater extent than the parenterally administered hormone, which might account for the difference in action. But sufficient hydrocortisone for parenteral administration was not available to test this hypothesis.

In comparing the number of survivors in the control series with the number of recoveries in the group given cortisone orally the difference between 15 and 60% is statistically significant and consistent with the figures previously reported when corticotropin was used (table 6). Furthermore, all of the survivors in the group of 20 controls were children, while in the treatment series adults are included among those who recovered.

In the absence of toxic effects we have no hesitation in recommending the use of orally administered cortisone in large doses at frequent intervals in the management of severe tetanus. Because of the relative ease of administration as well as a more prompt action, it is preferable to intravenously administered corticotropin.

SUMMARY

Forty patients with severe tetanus, on the basis of trismus, convulsions, fever, and a short period of incubation or onset, were selected for study. The average period of onset was less than 22 hours. Basic therapy given to all patients included two intramuscular injections of 120,000 units of antitetanus serum, daily injection of 400,000 units of penicillin, intramuscular administration of paraldehyde and such supportive measures as were indicated. Half of the patients were also treated with adrenal hormone. Cortisone was injected in 5 patients and given orally to 10, while hydrocortisone was given orally to 5 others. The administration of adrenal hormone was usually correlated with a drop in temperature and a fall in the pulse and respiratory rate. Fever often recurred when the dose of cortisone was reduced, and in some cases the fever did not respond to the dosage used. When cortisone was given intramuscularly, there seemed to be an aggravation of muscular spasms, but, when cortisone or hydrocortisone were given orally, there was a diminution in the intensity and severity of the convulsions. Among the 20 controls there were 3 survivors. None of the patients receiving injections of cortisone recovered, while 2 out of 5 patients getting hydrocortisone and 6 out of 10 patients getting cortisone by mouth recovered. Results obtained with cortisone administered orally are statistically significant and consistent with clinical observations as well as with previously reported beneficial effects obtained with corticotropin.

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12. A Controlled Study of Adrenal Hormone in Severe Tetanus, read before the 139th Meeting of the Staff Society of Seth G. S. M. College and K. E. M. Hospital, March 13, 1954.

13. Cortisone, Corticotropin, and Tuberculosis, editorial, J. A. M. A. **149**: 1474 (Aug. 16) 1952.

14. Satoskar, R. S.: Tetanus and Its Management: Kasanji Ranchhodji Desai Prize Essay, Seth G. S. M. College, Nov. 13, 1953.

ADDENDUM

Since this manuscript was prepared, our attention has been drawn to an account of three patients with tetanus who were treated with injections of cortisone.[15] In none of these cases was an incubation period of less than 7 days or a period of onset of less than 48 hours recorded. All patients recovered, and in the patients receiving the largest dose of injected cortisone the spasms were worse during the first five days of treatment. These observations are compatible with our conclusions that, although cortisone has a beneficial action in tetanus, it must be given orally to have a favorable effect on spasms.

Meanwhile we have administered cortisone orally to 10 more patients with puerperal tetanus and have had good results. For comparison there were 103 patients with puerperal tetanus treated in this hospital during the period 1943-1953 with a mortality of 62%. Since the advent of hormonal therapy we have treated in all 12 patients with puerperal tetanus with a mortality of 25%.[16]

15. Cossali, C., and Biella, A.: Cortisone in the Treatment of Tetanus, Minerva Med. 44: 1435-1437 (Nov. 14) 1953.

16. Dave, B. T., and others: Puerperal Tetanus Treated with Cortisone, Gosumec's M. J., to be published.

EMOTIONAL ASPECTS OF RESPIRATORY DISORDERS AMONG COAL MINERS

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In the course of referrals of a number of patients with chest complaints, we have had an opportunity to make a comprehensive appraisal of coal miners apparently incapacitated by respiratory complaints of "smothering," shortness of breath, cough, and chest pain. Our observations have indicated that emotional factors were of considerable importance in these cases regardless of the presence or absence of organic disease. These studies demonstrate the need for more attention to the personal situation of the coal miner who presents himself with respiratory symptoms. This report is based on medical and psychiatric studies of 40 patients, 30 of whom were interviewed by the same psychiatrist.

INVESTIGATIVE PROCEDURES

Each patient was studied over a period of three to six weeks. The protocol of investigation included case history, physical examination, urinalysis, complete blood cell count and hematocrit, determinations of sedimentation rate, serologic tests for syphilis, blood nonprotein nitrogen, fasting blood sugar, sputum examination, chest roentgenograms (posteroanterior inspiratory, expiratory, and lateral views), chest and heart fluoroscopy, electrocardiogram, measurement of circulation time, cardiological consultation, spirogram, pneumotachogram, and determinations of lung volume, arterial blood gases, and maximum breathing capacity. Tolerance for exercise was studied by direct observation of the patient while he was walking up four flights of stairs when possible, and by resting and exercise measurements of minute ventilation, oxygen consumption, carbon dioxide production, respiratory quotient, oxygen ventilation and carbon dioxide equivalents, dyspnea indexes, blood oxygen saturation, and blood carbon dioxide content.

Emotional factors became apparent during daily observation of the patients by the medical, nursing, and technical staff. Some of the conclusions concerning emotional factors have been mentioned in a previous report by one of us.[1] During previous studies, psychiatric consultation had been obtained only when the symptoms were not explained by physical findings, but for the 40 patients reviewed in this report psychiatric consultation was routine. A psychiatrist interviewed each patient as one of the group of physicians who participated in the complete appraisal. One of the psychiatrists, who had also studied coal miners referred to a psychiatric clinic in Kentucky, observed that patients seen as part of the regular procedure of an examination were less defensive and more ready to volunteer information on personal and social problems than patients who had been referred for special psychiatric consultation. The 30 patients seen by the same psychiatrist provide the most satisfactory material, from the aspect of uniformity and comparability, on psychiatric diagnosis and psychodynamics. The procedure of the interview was that of an "associative anamnesis," [2] with supplementary questioning to define the psychiatric diagnosis and to elicit comparable information for all patients. Personal events that had been followed by an increase in symptoms were noted particularly. Psychodynamic formulations were made from the sequence of associations, both spontaneously and in response to questioning, and in the perspective of the life history, including early memories and dreams.

MEDICAL CONCLUSIONS

Since this report is concerned essentially with the role of emotion in these cases, the details of the physiological data will not be discussed here. The final medical conclusions concerning the most significant diagnosis for each patient are summarized in table 1. These conclusions were reached by the physicians who carried out the physiological and medical investigations after consideration of reports of psychiatric consultations and other medical data. A psychoneurosis of some type was considered to be the most significant diagnosis in one-third of the patients. By combining the number of patients with psychoneurosis as the most significant medical diagnosis with the number of patients with miscel-

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1. Princi, F.: Industrial Medical Aspects of Chest Diseases of Occupational Origin, J. A. M. A. 150: 1173 (Nov. 22) 1952.

2. Deutsch, F.: (*a*) Associative Anamnesis, Psychoanalyt. Quart. 8: 354, 1939; (*b*) Applied Psychoanalysis: Selected Objectives of Psychotherapy, New York, Grune & Stratton, Inc., 1949.

laneous (nonrespiratory) diseases, one finds that 40% of the patients were not considered to have a respiratory disease as the most significant medical diagnosis. This does not mean that the respiratory symptoms were imaginary. Spirographic studies frequently revealed disorders of breathing that have been found to accompany anxiety and other types of emotional tension.[3] Many of the patients with pneumoconiosis, emphysema, or bronchitis and bronchiolitis and almost all of the patients with bronchial asthma had emotional factors contributory to their disability. It has been said of silicosis that with few diseases is the psychological approach more important.[4] There may even have been emotional factors antecedent to organic changes in cases of emphysema without bronchial asthma or other respiratory diseases, and bronchial asthma is certainly known to involve important psychosomatic aspects. Abnormally low blood oxygen content, when present, and the consequent cerebral anoxia may have contributed to the psychiatric difficulties and to a vicious circle in some of the patients with both "physical" and "psychiatric" disability.

TABLE 1.—*Most Significant Medical Diagnosis*

Diagnosis	No. of Cases	%
Psychoneurosis	13	32.5
Pneumoconiosis	11	27.5
Emphysema	6	15.0
Bronchial asthma	6	15.0
Bronchitis and bronchiolitis	1	2.5
Miscellaneous (heart disease, trachoma, hypertrophic arthritis)	3	7.5
Total	40	100.0

As to nature of disability—whether physical, psychiatric, or both—5 patients, or 12.5%, had physical disability but no psychiatric disability; 14, or 35%, had psychiatric disability but no physical disability; 21, or 52.5%, had both psychiatric and physical disabilities. Thus psychiatric factors contributed to disability in 87.5% of cases, more than half of the patients had both physical and psychiatric disabilities, and the percentage of patients whose disability was entirely psychiatric was almost three times that of patients whose disability was purely physical. Whatever the psychosomatic and somatopsychic sequences, the conclusions concerning the most significant diagnosis and the nature of the disability indicated the importance of an understanding of the personal history and the life situation of a coal miner with chronic respiratory symptoms.

PSYCHIATRIC FINDINGS

The psychiatric diagnoses for the 30 patients interviewed by the same psychiatrist are presented in tables 2 and 3. More than half were considered to have mixed psychoneuroses with combinations of the features itemized in table 3. Depressive and anxiety features predominated, with a variety of other neurotic and borderline psychotic features existing concomitantly. It is to be noted that some form of neurosis was present in 93.3% of these 30 cases even though only 32.5% of all 40 patients were considered to have psychoneurosis as the most significant medical diagnosis. Tables 4, 5, and 6 summarize the psychodynamic formulations, the personal events that had been followed by increase in symptoms, and the outstanding characteristics of the childhood histories. The number of these features and events adds up to more than 30 because more than one feature was often noted for each patient.

The material behind these summaries can be described dynamically by a composite reconstruction of the life stories that are represented. Most of these patients had been brought up in large families in rural Kentucky. Most of their fathers were farmers; some were miners or storekeepers. Their education had been neglected because of the economic needs of the family. In retrospect they felt bitter because they had forfeited opportunities that had been enjoyed by siblings or others. Their earliest memories revolved around economic deprivation, hard work, births of siblings, fighting among siblings, or a death in the family; the last was a frequent precursor of later pathological grief reactions.

These men had started to work in the mines in their teens and had continued to contribute to the support and schooling of younger siblings, or they had married young and soon had several children of their own to support, with hopes that their children would eventually support them. They were aware of the hazards to life and limb in the mines but had worked hard in the face of these hazards to earn good pay in order to give their children better opportunities and had succeeded for many years in repressing anxiety about the dangers of their work. Many of them appeared to have been overcompensating for their own frustrated dependent wishes in the emphasis that they placed on what they were able to do for their children. They utilized reaction formations against resentments of rivals and expressed their aggression in hard work, after abandoning the direct aggressions of drinking and fighting in which some of them had indulged in earlier years.

TABLE 2.—*Psychiatric Diagnoses in Thirty Patients*

Diagnosis	No. of Cases	%
Mixed psychoneurosis	17	56.6
Depressive neurosis	5	16.6
Anxiety neurosis	2	6.6
Traumatic neurosis	2	6.6
Conversion hysteria	1	3.3
Organ neurosis	1	3.3
No psychiatric disability	2	6.6

TABLE 3.—*Features in Mixed Psychoneuroses in Seventeen Patients*

Feature	Occurrence	
	No.	%
Depressive	13	76.5
Anxious	8	47.1
Conversion	6	35.3
Organ neurotic	5	29.4
Hypochondriacal	5	29.4
Traumatic neurotic	1	5.9
Schizoid	3	17.6
Paranoid	1	5.9

Over the years they had lived through a number of explosions or slate falls that had killed or maimed other

3. Christie, R. V.: Some Types of Respiration in the Neuroses, Quart. J. Med. **4**: 427, 1935. Finesinger, J. E.: The Spirogram in Certain Psychiatric Disorders, Am. J. Psychiat. **100**: 159, 1943. Stevenson, I., and Ripley, H. S.: Variations in Respiration and in Respiratory Symptoms During Changes in Emotion, Psychosom. Med. **14**: 476, 1952.

4. Sander, O. A.: Silicosis in Current Therapy: Latest Approved Methods of Treatment for the Practicing Physician, Philadelphia, W. B. Saunders Company, 1953, pp. 101-102.

miners with whom they had been closely associated. Many of them had been involved in futile attempts to rescue a fellow worker and had participated in removing the body or notifying the family. They had survived minor accidents and narrow escapes. After these experiences they had anxiety dreams of cave-ins and other catastrophies. On awaking from such dreams, or while at work, they began to have shortness of breath, choking sensations, and spasms of coughing, sometimes accompanied by chest pains, fatigue, and weakness. These symptoms often came on or were aggravated after deaths in the family. These miners appeared to be particularly prone to pathological grief reactions involving unconscious guilt over the death of a mining confrere or some member of the family, while they continued to survive; for example,

TABLE 4.—*Psychodynamic Features in Thirty Patients*

Feature	Occurrence No.	Occurrence %
Anxiety about mining hazards	18	60.0
Grief reactions	10	33.3
Overcompensation for frustrated dependent wishes	9	30.0
Regression to dependency	8	26.6
Identification with sick or injured persons	6	20.0
Resentments of authority	3	10.0

TABLE 5.—*Personal Events Followed by Increase in Symptoms in Thirty Patients*

Events	Occurrence No.	Occurrence %
Serious accidents or deaths of other miners	21	70.0
Accidents of their own	17	56.6
Deaths in the family	16	53.3
Statement of incapacity by physician	13	43.3
Narrow escapes from accidents	4	13.3
Cessation of work from mine shutdown or strike	3	10.0
Other major events	13	43.3

TABLE 6.—*Features of Childhood Background in Thirty Patients*

Feature	Occurrence No.	Occurrence %
Hard work to help support siblings	14	46.6
Deaths in family	9	30.0
Feeling deprived in comparison with others	8	26.6
Much fighting among siblings	4	13.3
Youngest in large family	2	6.6
Fears of father	2	6.6
Fears of mother	1	3.3
Parents separated	1	3.3

many patients admitted that a death had been a great "blow" but that they had not let themselves think about the deceased thereafter; dreams or reactions at other funerals indicated that their feelings had not been "worked through." In some patients symptoms had developed from identification with someone who was sick or injured, and they regressed to a dependent state that protected them from the risk of exposure to a fate they were unconsciously expecting. Most adhered to the cultural pattern of conscious denial of fear of mining experiences. Many continued to work until they were examined by a physician (frequently during an acute respiratory infection or an unrecognized anxiety attack) and told that they were incapacitated. The cessation of work on this basis, or because of a strike or a mine shutdown, meant the loss of an outlet for aggression in hard work, and they became more depressed and more incapacitated. Sometimes other personal problems, such as financial losses, marital difficulties, or disappointments in children who went away from home or failed to contribute to the support of the family, had precipitated or aggravated their symptoms.

When first seen by us, these patients were middle aged or older (mean age 50, range 36 to 64) and had been having symptoms for 3 to 10 years, with inability to work for 1 to 2 years. Many were recipients of grants-in-aid from the United Mine Workers' Welfare and Retirement Fund, but most of these were unhappy about their dependent status and unaccustomed inactivity. At an early stage of their illness most patients had been able to work on the small plot of ground they might have bought with their savings. They might have been capable of working in some other employment, if such had been available, or if they had had insight into the emotional stress incurred by working in the mines, but most of them considered mining the only occupation for which they were suited. When they became unable to work in the mines, they felt that they were quite incapacitated for any physical labor, and they lost their initiative for other employment, showing secondary phenomena of regressive invalidism. The picture was like that of a combat veteran in war who has "had it" after prolonged battle stress and deaths of his "buddies," but who could, nevertheless, be rehabilitated for noncombat duty or civilian life by psychiatric treatment and therapeutic occupation.

COMMENT

Reports from England and Scotland have pointed to the importance of psychoneurotic and psychosomatic factors in the incapacities of underground coal miners.[5] Halliday found that 64% of miners were incapacitated for psychoneurotic and psychosomatic reasons, in contrast with 38% of nonminers, in consecutive examinations of 200 of each group who were receiving sick benefits. Post reported a full range of neurotic and psychotic disorders among miners seen at a psychiatric hospital, with a predominance of anxious-depressive psychoneurosis (30%) and depressive psychosis (18%). Halliday reported the diagnoses of anxiety states, anxiety-hysteria, and hysteria for miners seen for health insurance examinations presenting somatic complaints involving the respiratory, cardiovascular, gastrointestinal, and locomotor systems. Wiesel and Arny have described a "miner's syndrome" among eastern Kentucky miners past the age of 40, characterized by numerous somatic complaints, a passive, dependent attitude, and an outstanding lack of anxiety, with rationalizations based upon having been exposed to "bad air" and hard work, and "nerves being run down."[6] Younger patients, on the other hand, showed conscious anxiety and fear of occupational dangers.

Causative influences have been attributed to fear of accidents,[7] fear of disease,[8] and changing working and social conditions.[9] In Post's series the working conditions

5. (*a*) Dickson, D. E.: The Morbid Miner, Edinburgh M. J. **43**: 696, 1936. (*b*) Brock, R. S.: A Study of Miners' Nystagmus, Brit. M. J. **1**: 443, 1938. (*c*) Halliday, J. L.: Dangerous Occupation; Psychosomatic Illness and Morale: A Study Based on the Investigation of Incapacitation Disorders in Underground Miners, Psychosom. Med. **5**: 71, 1943. (*d*) Post, F.: A Study of Psychiatric Illness in Coal Miners, J. Ment. Sc. **92**: 574, 1946. (*e*) Heron, A., and Braithwaite, D.: Emotional Stability in Colliery Workers, Brit. J. Indust. Med. **10**: 27, 1953.

6. Wiesel, C., and Arny, M.: Psychiatric Study of Coal Miners in Eastern Kentucky Area, Am. J. Psychiat. **108**: 617, 1952.

were considered to be the main causative factors in 28% of cases, although 58% of the miners themselves put the blame on their work, and 41% of them were confirmed in that belief, initially, by the opinions of their physicians. Nonoccupational factors were considered to be the main causes in more than half of the cases. Accidents had precipitated the illness in one-third of the cases, the prospect of returning to a dangerous environment being an important factor. A persistent fear of hazardous conditions was present in 41% of the patients.[5d] Dreams of mine accidents, sometimes after a particular accident, indicated unconscious fear of accidents.[5c] Statements by physicians frequently confirmed the miner's own feelings of incapacity.[10] Mechanization of the mines, with changed working conditions involving less personal interest in the work and less ability to hear warning signs of cracking strata because of the noise of the machinery, has been stressed.[5a] The changing social conditions in relation to Kentucky miners have been described in detail by Wiesel and Arny, who have emphasized the miners' previously strong familism and their more recent greater contact with the outside world, resulting in dissatisfaction with their lot.[6] Similar social changes appear to have influenced Scottish coal miners.[5c] Chronic neuroses and depressed and melancholic states of mind were noted to follow unemployment through layoffs.[5b] Welfare benefits for illness have been discussed as fostering a dependent attitude in retreat from the hazards of work.[6]

Our findings have been in essential agreement with these reports, with particular aspects being highlighted owing to the specific characteristics of our group of miners and our attempt to understand the individual psychodynamics, granting that environmental and social factors have been in operation. Our patients with respiratory symptoms did not have as wide a range of psychiatric disorders as those with "psychiatric illness" described by Post nor as wide a variety of symptoms as those reported by Halliday or by Wiessel and Arny. We noted a predominance of depressive reactions, associated with dissatisfaction about being dependent upon the welfare fund instead of being actively productive, but also associated with inhibitions for returning to work because of unconscious fears of real hazards and depressive expectations of catastrophe.

The development of this situation is easily understandable from both the life history and the environmental circumstances. These miners had worked hard in overcompensation for childhood deprivations. They had been oversolicitous for other miners and other members of their families, in reaction formation against the rivalries of their childhood. After deaths of other miners or of other members of their families and after accidents or narrow escapes, they unconsciously expected to be killed. When a diagnosis of physical disease was made by a physician, they took refuge in their symptoms to avoid further risk, but the cessation of work deprived them of an outlet for the aggressive impulses that had been behind the entire sequence.

SUGGESTIONS FOR PREVENTION AND TREATMENT

Our understanding of the development of these disorders leads us to certain suggestions for medical and social measures to interrupt the sequence leading to incapacity, unhappiness, and nonproductivity. Improvement in mine safety is one measure to which attention is being given. The recognition by physicians of the importance of emotional factors in the respiratory symptoms of miners at an early stage of the disorder would open up possibilities for the treatment of the disorder before a return to mining was out of the question. A diagnosis based on inadequate historical, physiological, and roentgenographic evidence can do much harm by needlessly reinforcing the patient's belief of physical incapacity. Many of these men, if assessed carefully, both physically and psychologically, might be returned to mining after treatment for traumatic anxiety or grief reactions along the lines of treatment of acute neuropsychiatric battle casualties. Others might be unable to return to underground mining but might be rehabilitated in some other employment if help were given them to understand the nature of their fears and if prospects for other employment were provided before the patients became fixed in a belief that they could not engage in any productive activity. One of us (H. H. L.) has had encouraging results with these patients from individual psychotherapy, group therapy, and rehabilitation measures.

Physicians who deal with miners can improve in the recognition and handling of these problems; however, employers and unions have a responsibility for opening up earlier opportunities for treatment and for rehabilitation at less hazardous occupations if improvement in medical care is to result in solution rather than mere elucidation of the problem. Finally, an educational program among miners concerning the psychological and physiological reactions to the stresses of their occupation would help to reduce the disabilities that are developing at present.

SUMMARY

In medical and psychiatric studies of 40 coal miners with respiratory symptoms, 30 of whom were interviewed by the same psychiatrist and 10 by other psychiatrists, psychoneurosis was the most significant diagnosis in one-third of the patients. Important psychosomatic factors appeared to be contributing to clinical manifestations of pneumoconiosis, emphysema, and bronchial asthma. Only 12.5% of patients had disability on "physical" grounds alone; 35% had disability on "psychiatric" grounds alone, and 52.5% on both physical and psychiatric grounds. Depressive and anxiety features predominated. Consideration of psychodynamics, personal events, and childhood background contributed to the understanding of the development of incapacity of these miners, whose attitude toward their hard work and its serious hazards, augmented by fatalities among their associates in the mines, by their own experience of accidents, or by deaths in their families, led them to expect catastrophe for themselves. They had regressed to dependency on being provided with a physical diagnosis, but their depression and insecurity had increased with the cessation of work and the loss of an outlet for aggression.

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7. Dickson,[5a] Halliday,[5c] and Post.[5d]
8. Princi [1] and Halliday.[5c]
9. Dickson,[5a] Halliday,[5c] and Wiesel and Arny.[6]
10. Princi [1] and Halliday.[5c]

INITIAL CARE OF THE SEVERELY WOUNDED

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Recent reports on the management of mass casualties in civilian disasters, such as the Waco, Texas, Worcester, Mass., and Flint, Mich., tornadoes [1] and the increased interest in civilian defense emphasize the importance of care of the severely wounded by the civilian physician. In preparing for the world of tomorrow, the civilian physician should familiarize himself with techniques of management of large numbers of wounded men. It is believed that the experiences gained from the study of combat casualties in Korea offer lessons that are applicable to civilian injuries as well as to battle wounds. The role of the company aid man may be likened to that of the ambulance attendant and the role of the battalion surgeon to that of the physician who first sees the patient. The type of care in the preoperative section of a forward surgical hospital is similar to that given in the emergency room of a civilian hospital. One of the primary aims in the initial care of the wounded man is resuscitation. Resuscitation may be considered as any procedure carried out to counteract the effects of the wound, such as tracheotomy for obstruction of the airway, administration of blood for blood loss, and splinting of fractures to prevent pain and further injury. The wound is a continuing insult to the body; therefore resuscitation must be a continuous series of corrective procedures.

FIRST AID

The aid man, whether he is a civilian ambulance attendant or a company aid man on the battlefield, begins the initial phase of resuscitation. Hemorrhage can be controlled in most instances by a firm pressure dressing, but in some cases application of a tourniquet may be necessary. To prevent further contamination and as an extra precaution, a firm pressure dressing should be put over the wound at the same time a tourniquet is applied. Unconscious patients should be turned on their side, and the tongue pulled out to insure an adequate airway. An occlusive dressing must be applied to a sucking wound of the chest. Splinting of fractures relieves pain and prevents further injury at the fracture site. Severely injured patients experience little pain, therefore narcotics should be avoided whenever possible, especially in patients who have craniocerebral injuries or chest injuries and in patients who are hypotensive.

Early in the Korean conflict, the company aid man carried small bottles of albumin for administration during the litter carry to the aid station. When dextran became available in plastic bags, the aid man carried three or four of these units on patrol. The infusion could be hastened by merely squeezing the plastic container. Battalion surgeons emphasized the importance of administering a plasma expander as soon as the casualty was seen. Although severe blood loss may not be evident immediately after injury, a blood volume deficiency will usually occur after severe wounding; hence immediate restoration is indicated.

CARE BY THE FIRST PHYSICIAN

The physician who first sees the patient is not merely a first aid man but an important member of the resuscitative team. The care that he gives is of an emergency type, but he must take time to institute initial procedures that will prepare the injured patient for transportation to the nearest hospital. Since injured patients have a great deal more fear and anxiety than true pain, it is important that an attempt be made to alleviate this fear by reassurance. Often a simple explanation by the physician that the wounds do not threaten life or limb, and that a small amount of pain can be tolerated, will bring gratifying relief. The restlessness of an injured patient is frequently due to hypovolemia or hypotension. This is a response due not to pain but actually to cerebral anoxia. As soon as his circulatory status improves, the patient becomes quieter. When true pain is present, a narcotic should be administered intravenously. All wounds should be inspected for control of hemorrhage. If a tourniquet has been applied, it should be examined carefully. Not infrequently when the aid man applies a tourniquet as an emergency procedure, further evaluation by the medical officer will show that a pressure dressing will be sufficient. Respiratory obstruction commonly accompanies severe maxillofacial, head, and chest wounds. If there is doubt as to the adequacy of the airway, a tracheotomy should be performed before further transportation is attempted. Sucking wounds of the chest must be closed; blood or air in the chest may be removed by thoracentesis; cardiac tamponade can be relieved by the insertion of a needle into the pericardial sac.

A severely wounded patient's chance for survival can be greatly enhanced by the infusion of two or three units of a plasma expander prior to transportation. Hurried evacuation may lead to undue deterioration during transportation. The importance of a short interval of time between injury and admission to a hospital is well recognized, but a slight delay for further restoration may be warranted because the patient may be better prepared to withstand transportation. The commonest mistakes in care prior to the patient's admission to a hospital are inadequate splinting, overdosing with morphine, and evacuation without proper preparation.

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INITIAL HOSPITAL CARE

As soon as the injured man arrives at the hospital, the surgeon should evaluate his condition and prepare him for the necessary operative procedure. A record should be kept of the findings of the initial examination, particularly of the extent of vascular, nerve, and bone involvement, as well as blood pressure and pulse rate. All injured patients should receive tetanus antitoxin or a booster dose of toxoid. Antibiotics should be given to aid in the prevention of infection. The amount and type of antibiotic therapy may vary according to current concepts of practice. Because of poor absorption in injured patients after oral and intramuscular administration, the intravenous route of injection is preferred. Nasally administered oxygen is indicated if cyanosis is present or if there is difficult respiration or massive blood loss.

Blood volume deficiency should be remedied as rapidly as possible. Blood should be given through a 15 or 17 guage needle. If a large amount of blood replacement is anticipated, it is wise to expose surgically an accessible vein and tie in a cannula. When it is difficult to find a suitable vein, a 13 guage needle may be inserted into the femoral vein and a long segment of plastic tubing threaded into the inferior vena cava. The needle can be removed and the plastic tubing allowed to remain in place. This tubing should be removed as soon as possible, since thrombi may form and give rise to complications. Rapid infusion is commonly carried out by pumping air into the bottle of blood, but air embolism is a grave, inherent danger. During 1952 and 1953 in Korea, five deaths were recorded from this procedure as the result of air embolism. Low titer, group O blood without cross matching was used almost exclusively in the Korean conflict and was found to be most satisfactory. The incidence of appreciable reactions was negligible.

It is most difficult to decide when a patient's blood volume has been increased to the extent that he can best tolerate anesthesia and surgery. The value of adequate preparation for operation has frequently been emphasized in elective surgery. In the surgery of trauma, it is even more important to prepare the patient by restoring his blood volume before operation. Unless continued hemorrhage is present and operation is mandatory to control this hemorrhage, the blood volume should be increased to near normal levels. Frequently blood requirements may be judged by the size and character of the wound. In the absence of hemothorax and pneumothorax, injury to the central nervous system, or anoxia from blockage of the respiratory passages, hypotension usually means a deficiency in blood volume.

The surgeon's guides to the adequacy of restorative treatment consist of general appearance of the patient, color of the conjunctiva, blood pressure, pulse rate, and output of urine. If sufficient blood has been provided to permit good peripheral circulation, it will be indicated by the blood pressure. The adequacy of visceral blood flow can be estimated by the rate of flow of urine. In a severely wounded patient, a catheter should be inserted into the bladder in order to observe the output of urine. A urine flow of 30 cc. or more per hour suggests that the circulatory volume is approaching normal. A patient is usually ready for operation when his systolic blood pressure reaches 110 mm. Hg and his pulse rate has fallen to 120 per minute. When the systolic blood pressure reaches 100 or 110 mm. Hg, the patient may be moved to the x-ray room or to the operating table. If he is resuscitated adequately, the movement will not cause a deterioration of his condition. On the other hand, if he has an appreciable blood volume deficiency, a fall in blood pressure will occur when he is moved.

Since most patients are able to compensate for a certain degree of blood volume deficiency by vasoconstriction, normal blood pressure does not always mean an adequate volume restoration. Tilting the patient with his head up tends to abolish compensatory mechanisms. A simple tilt test offers an additional criterion by which the surgeon can judge the adequacy of preparation for surgery.[2] If the patient's head is tilted upwards 30 degrees and his blood pressure falls and his condition deteriorates rapidly, this is good evidence that restoration of blood volume has been inadequate. If sufficient transfusions have been carried out, however, the patient can probably withstand, for 10 minutes, tilting of his body to a 30-degree angle with his head up. In questionable cases, this simple test helps to determine the adequacy of circulation.

In some instances, a surgeon may observe that hemorrhage is occurring as rapidly as blood is being replaced. In such cases, blood should be added through two or three veins, and the patient should be placed on the operating table immediately. As soon as hemorrhage is controlled at operation, further manipulation should be deferred until blood volume deficiency has been restored. Concealed hemorrhage in the abdomen or chest may be the cause of failure of response in a patient. Careful attention should be given to the size of the abdomen when there is a wound in that area. A rapidly expanding abdomen may mean serious intra-abdominal hemorrhage. Severe hypotension may be caused by air or blood in the chest. Cardiac tamponade and tension pneumothorax have a grave prognosis and must be alleviated immediately. Preoperative roentgenograms should be taken when indicated. All patients with abdominal wounds should have an intragastric tube and a urinary catheter inserted prior to operation.

CARE IN THE OPERATING ROOM

Patients who have wounds of the abdomen, chest, or arteries should have two large needles or cannulas well anchored in veins during operation so that blood can be given through multiple portals if necessary. The surgeon should always be near the patient during the induction of anesthesia because of the possibility of cardiac arrest, a not uncommon occurrence in severely wounded patients who have suffered varying degrees of anoxia. During the last six months of the Korean conflict, 14 cardiac arrests were reported in forward hospitals. All but two of these patients died.

In patients injured in many different parts of the body, it is necessary to determine priority for the site of operation. The area of massive hemorrhage should receive attention first; thereafter priority should be given to the chest, abdomen, head, and extremities, in that order. It may be necessary occasionally to perform the highest

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priority surgery and then, because of the patient's poor condition, delay surgery of the head and extremities until general improvement occurs. During the operative procedure, the surgeon must estimate constantly the amount of blood the patient is losing as a guide to replacement therapy. When several areas are injured, there is a constant oozing until the initial surgery is completed. To minimize blood loss, the operation should be performed as expeditiously as possible. In patients with multiple wounds, two surgical teams may work in different areas in order to lessen the period of anesthesia and operation. As the endotracheal tube is removed at the termination of the operative procedure, the airway should be cleared. If there has been any question as to aspiration of vomitus, bronchoscopy should be performed.

CARE AFTER OPERATION

Continued restoration and careful observation of the patient during the postoperative period is the phase of care that is most easily overlooked. Too frequently the surgeon who feels that he has restored the patient's blood volume and performed an adequate procedure expects the patient to recover uneventfully without further therapy. It is imperative that the patient be examined frequently for evidence of blood loss, atelectasis, and other chest complications. Frequent observations of the blood pressure and hourly measurements of the urine are essential guides to therapy. A patient who is hypotensive after operation and does not excrete urine probably has a blood volume deficiency, and further replacement is required. In a study of severely wounded men in Korea, 18 of the 61 who required from 5 to 10 pt. (2,365-4,730 cc.) of blood in the first 24 hours were given more than a pint of blood postoperatively. Of the more severely wounded group of 77 men who required from 10 to 56 pt. (4,730-26,488 cc.) of blood, more than half received over 2 pt. (946.3 cc.) of blood in the immediate postoperative period.[3] Continued oozing has been observed in patients who have received massive quantities (from 18 to 20 pt. [8,514-9,460 cc.]) of stored blood. It is not known what deficiency in stored blood prevents normal clotting. Sometimes this deficiency can be replaced by fresh blood. In one patient treated in Korea, severe oozing occurred after the administration of 39 units of stored blood.[4] This oozing ceased after 6 pt. (2,838 cc.) of fresh blood had been given. The patient recovered.

Hypotension after operation may be caused by a dilated stomach or a distended bladder. Acute dilatation of the stomach postoperatively is not uncommon after severe injury since overdistention of the stomach frequently follows the use of intranasal oxygen. As soon as the patient's blood volume is restored to near normal levels as evidenced by a normal blood pressure and the start of urine flow, electrolyte solutions and water should be given.

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6. Sako, Y., and others: A Survey of Evacuation, Resuscitation, and Mortality in a Forward Surgical Hospital, to be published.

USE OF PLASMA VOLUME EXPANDERS

Although infusions of whole blood are the ideal treatment for blood loss following injury, some type of solution may be required to expand plasma volume before whole blood is available. In the early part of the Korean conflict, lyophilized pooled plasma and albumin were used as emergency replacement solutions. Plasma had three distinct disadvantages: (1) the risk of homologus serum hepatitis; (2) delay for reconstitution; and (3) breakage caused by freezing of many of the bottles of water, particularly during the winter months. During the last few months of the war, dextran replaced plasma. Over 4,000 units of dextran were used without reaction or clinical evidence of increased hemorrhage. It was used primarily in areas forward of the surgical hospital. It was difficult to determine exactly how long the dextran maintained the plasma volume expansion. On the other hand, it was clinically evident in Korea (average evacuation time of three and one-half hours) that the dextran given prior to admission maintained the plasma volume for the period of transportation to the hospital. Dextran is particularly useful in civilian emergency rooms because it can be immediately infused while waiting for blood to become available. Likewise, it should prove of particular value in industrial plant dispensaries for emergency use in case of severe accidents. It is easily administered during transportation of the patient to a hospital.

When adequate quantities of whole blood are not available, it may be necessary to carry out restoration by the administration of a plasma volume expander. From experience in Korea, it appears that patients may be treated safely with dextran and conservative quantities of whole blood. In a patient who requires from 1,000 to 1,500 cc. of replacement fluids in the first 24 hours, complete resuscitation may be carried out safely by the administration of dextran. The patient's hematocrit will fall to a low level, but the anemia may be corrected by whole blood administered at a later date. In patients who required from 1,500 to 4,000 cc. of replacement fluids, dextran and blood may be given in a ratio of 1:1. For patients requiring from 4,000 to 7,000 cc. of fluid, dextran may be given in the ratio of 1 unit of dextran to 2 units of blood. In the most severely wounded, a maximum of 2,500 or 3,000 cc. of dextran should be given, and the remainder of the replacement fluid should be whole blood.

USE OF MASSIVE TRANSFUSIONS

The greatest single difference between the management of wounded men in Korea and those in World War II appears to be the massive quantities of blood administered throughout the various treatment periods. It is difficult to make an accurate comparison of mortality rates in Korea with those of World War II because it is almost impossible to find reports on comparable groups. In a series of 1,085 men wounded abdominally who were treated by the Second Auxiliary Surgical Group during World War II and were operated on within seven hours after injury, the mortality rate was 20.5%.[5] At the 46th Surgical Hospital in Korea, among a series of 284 abdominally wounded persons who were admitted and operated on within an average of seven hours after injury, the mortality rate was 10.7%.[6] The lower mortality rate

in Korea may be due to several factors. These include a shorter evacuation time, smoother evacuation by helicopter, a more stable tactical situation, routine use of antibiotics, and, of primary importance, the administration of large quantities of blood.

During the final six months of the Korean conflict, 138 consecutive casualties receiving massive transfusions were studied.[5] These patients received 5 (2,365 cc.) or more pints of blood for restoration during the first 24 hours after injury. Their over-all mortality rate was 14.5%. The mortality rate varied in accordance with the amount of blood required for restoration: in the 5 to 10 pt. (2,365-4,730 cc.) group the mortality rate was 1.6%; in the 10 to 15 pt. (4,730-7,095 cc.) group, 16%; in the 15 to 20 pt. (7,095-9,460 cc.) group, 25%; in the 20 to 56 pt. (9,460-26,488 cc.) group, 53%.

There were 33 casualties who were admitted with a systolic blood pressure less than 80 mm. Hg. The mortality rate for this group was 21%. The type of wound varied, with no particular type of injury predominating. The total amount of blood administered in the first 24 hours ranged from 2,500 cc. to 28,000 cc.; the average amount given was 7,600 cc. Ten casualties in this group were admitted with a blood pressure too low to be obtained by the usual cuff method. Three of these died, two from uncontrolled hemorrhage, and the cause of death in the other was unknown. The seven casualties who lived required from 11 to 26 pt. (5,203-12,298 cc.) of blood in the first 24 hours.

Blood volume determinations were carried out in 15 patients by the chromium 51-labeled red cell method.[7] All determinations were performed in the early postoperative period. After administration of massive quantities of blood, these determinations demonstrated an average blood volume of only 80% of the calculated normal. Only two casualties had blood volumes somewhat higher than normal. In general, these studies showed that overtransfusion rarely occurred in spite of the infusion of massive quantities of blood. In these most severely wounded, the amount of blood given preoperatively was about the same as the amount required during the operative procedure. In the patients who received 5 to 10 pt. (2,365-4,730 cc.) of blood, about 3 pt. (1,419 cc.) were given prior to operation and 3 pt. (1,419 cc.) during operation. In the more severely wounded, the 10 to 56 pt. (4,730-26,488 cc.) group, 7 pt. (3,311 cc.) of blood were given prior to operation and almost 7 pt. (3,311 cc.) of blood were given during operation. This points out that, during operation, large quantities of blood are lost from the multiple sites of injury.

INTRA-ARTERIAL AND INTRAVENOUS TRANSFUSIONS

If a patient has a severe hypotension and his condition is markedly deteriorated, blood should be given rapidly. Some surgeons prefer transfusion by the intra-arterial route. Recent experimental studies in the dog have failed to confirm the superiority of intra-arterial transfusions over intravenous transfusions except that frequently it is possible to administer blood more rapidly into an artery.[8] A preliminary evaluation of the two routes of transfusion was carried out in a very small group of patients in Korea.[9] Six patients admitted in extremely poor condition, with very low blood pressure, were given blood intra-arterially. The average rate of infusion was 88 cc. per minute. Six other patients, who were in a similar condition, received blood by multiple intravenous channels, and the rate of infusion was 70 cc. per minute. The response in each group was similar. No attempt was made to achieve an absolute maximum rate of infusion by either method. The data represent the actual accomplishments of blood replacement in a small series of patients in deep oligemic shock. Although no definite conclusions can be drawn from this very limited experience, the impressions were that blood given by the intra-arterial route was of no more value than was blood given intravenously, and it was seen that blood could be given as rapidly through multiple venous channels as by the intra-arterial route. The intra-arterial transfusions were given after exposure and cannulization of the femoral artery, at which time the surgeon held the needle in the artery during infusion. There were no complications.

SUMMARY

The wound is a continuing insult to the body; therefore resuscitation must be a continuous series of corrective procedures. The aim of initial care of the severely wounded is to prepare them for transportation to the nearest hospital, then further preparation for operation. Unless hemorrhage is uncontrolled, the patient should be restored until the systolic blood pressure is 110 mm. Hg or more and the pulse rate 120 per minute or less before the operation. When there are multiple areas of injury, priority for operation should be given to the area of hemorrhage, chest, abdomen, head, and extremities, in that order. Dextran is valuable as an emergency replacement solution; it replaced plasma during the latter part of the Korean conflict. When adequate amounts of blood are not available, restoration may be carried out satisfactorily by administering dextran and conservative quantities of blood. In Korea the mortality rate for persons who had abdominal wounds was about one-half the mortality rate for a comparable series in World War II. The use of massive transfusions seems to be the predominant contributing factor. In a group of 138 wounded persons who required from 5 to 56 pt. (2,838-26,488 cc.) of blood in the first 24 hours after injury, the mortality rate was 14.5%. Impressions gained from a limited study were that blood infused by the intra-arterial route was of no more value than blood infused by multiple intravenous routes.

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PREVENTION AND TREATMENT OF ATHEROSCLEROSIS

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Because of the increasing importance of the problem of cardiovascular disease, and particularly the problem of atherosclerosis, it is the desire of all physicians to do something effective about the prevention and management of this disorder. With recognition of the growing importance of this problem, an accelerated research program in this country and throughout the world has been initiated. As a result, increasing notice has been taken of each new drug suggested as being of value. Physicians, perhaps in part because of the frequency with which catastrophic cardiovascular accidents occur in their own profession, are prone to accept these drugs for use, in the hope that response will be beneficial. Unfortunately, as of this moment, no drug or other preparation has been demonstrated to significantly alter the development of atherosclerosis. Although many promising leads have been explored, none has proven of practical, clinical value. In this presentation an attempt will be made to indicate briefly the rationale for several forms of drug therapy that have been suggested and to summarize the present status of the problem.

CHOLESTEROL

Deposition Versus Intrinsic Arterial Lesion.—It has long been known that the increased deposition of cholesterol in the intimal and subintimal layers of arteries occurs early in the development of atherosclerosis. Indeed, most of the emphasis in the past few years has been on explaining the role of the circulating cholesterol in this process of intimal deposition. It must be emphasized that the role of the circulating cholesterol is not to be considered alone but must be considered in relationship to the capacity of the arteries themselves to participate in the vagaries of cholesterol metabolism. The recent demonstration that the arterial wall may actually synthesize cholesterol indicates the importance of this concept.[1]

Circulating Cholesterol.—The level of the circulating cholesterol is the result of the absorption of cholesterol from the diet, its synthesis, and the degradation and utilization of cholesterol, particularly by the liver. Quantitatively, the least important of these factors in the maintenance of the plasma cholesterol levels is that factor that is absorbed from the diet. Large amounts of cholesterol, as much as 20 times that absorbed from the diet, are synthesized daily from radicals as small as acetate. Recent studies have shown that perhaps the most important factor in regulating the level of the plasma cholesterol is the variation in the rate of degradation.[2] To control the role of blood cholesterol in the pathogenesis of atherosclerosis, attempts have been made to sharply restrict cholesterol intake or to modify cholesterol absorption by the administration of sterols that compete for intestinal absorption with cholesterol and, thereby, prevent the normal reabsorption of cholesterol from the intestinal tract. These substances, largely plant sterols, do not alter the rate of synthesis or degradation of cholesterol in the body and, therefore, only interfere with the least important of the several factors regulating the blood cholesterol level. As would be anticipated, the effects of the plant sterols on the level of circulating cholesterol are, generally, not pronounced, and as yet these have not been demonstrated to be of any significant practical value in the handling of human atherosclerosis. In considering the effect of any therapeutic regimen on the total cholesterol level, one must recognize the sharp spontaneous variations that occur in the serum cholesterol. This may be much more significant than the effect of the drug or therapeutic procedure.

Quality Versus Quantity.—It should be pointed out that restricted cholesterol intake and the administration of plant sterols tend to interfere with the quantity of the circulating cholesterol and in no way are designed to modify its quality. Increasingly, it is becoming apparent that not only the quantity of circulating cholesterol is important but also its quality. This has been particularly emphasized by the work of Gofman,[3] who has shown that the cholesterol-containing lipoprotein complex may be of prime importance in altering the rate of cholesterol deposition. While all the factors altering the form in which cholesterol is carried in solution in the blood are not known, it has been established that heparin and a high titer of circulating estrogens tend to facilitate the transport of cholesterol in lipoprotein complexes that are not prone to be deposited on the intimal surface. The heparin effect, first noted as a lipemia-clearing factor, is to increase the proportion of lipoprotein molecules of sizes smaller than those likely to be related to atherogenesis. The estrogen effect is related to the observation that young women have a decidedly lower incidence of coronary atherosclerosis than do men or women in the postmenopausal ages.

From a practical point of view, it is not possible to administer either heparin or its synthetic analogues in sufficient concentration to alter consistently the quality of the circulating cholesterol so that cholesterol deposition does not occur. Levels of circulating heparin necessary to exert this effect are well into the hazardous bleeding level. The administration of heparin at infrequent intervals or by the depot technique does not result in any discernible beneficial effect on the circulating lipoproteins and, therefore, exerts no effect on the atherosclerotic process. Similarly, heparin exerts no beneficial effects aiding the removal of atherosclerotic lesions from arteries once they have developed. It should be pointed

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out, however, that experimentally, the administration of large doses of heparin to animals on a regimen likely to result in atherosclerosis slightly, but definitely, reduces the severity of the atherosclerotic lesions. The administration of estrogens to produce a shift in the form in which cholesterol is carried in combination with lipoprotein toward that seen in the young female must be at a dosage level high enough to produce significant side-effects such as depression of libido and the development of gynecomastia.[4] Other hormones, particularly the thyroid, may play a significant role in regulating the development of atherosclerosis. It has long been claimed that the person with hypothyroidism tends to have an elevation of the total serum cholesterol, although there is considerably less evidence that this elevation of cholesterol is associated with any increase in the rate of development of atherosclerosis. On the other hand, hyperthyroidism, with its attendant low cholesterol levels, does not seem to be associated with any significant decrease in the development of atherosclerosis.

Lipid Phosphorus Ratio.—The role of the circulating phospholipid measured as lipid phosphorus has been thought to play some role in keeping the cholesterol in suspension. While the ratio of cholesterol to lipid phosphorus has been widely discussed as a diagnostic test for atherosclerosis, there is now ample evidence to indicate that this ratio is simply a reflection of variations in the cholesterol level and that the phospholipid plays no significant role in maintaining the cholesterol in solution.[5] For this reason, attempts to administer various phospholipids to influence the cholesterol-lipid-phosphorus ratio exert no significant effect on the course of atherosclerosis. The recent demonstration by Mann[6] of the role of protein deficiencies in the diet in the production of atherosclerosis in Cebus monkeys directed attention again to the role of dietary protein in the atherosclerotic problem. While the significance of dietary protein so far as human atherosclerosis is concerned is not known, the protein lipid complexes in which the cholesterol is carried may play a major role in influencing cholesterol deposition. For this reason, and because the dietary proteins provide lipotropic material, probably an adequate protein diet is important; however, there is no proof that parenterally protein hydrolysates or an excessive protein diet tend to alter the rate of development of atherosclerosis.

LIPOTROPIC AGENTS

By far the most widely heralded group of drugs for the prevention and retardation of atherosclerosis have been the lipotropic drugs—choline, methionine, and inositol. These materials provide a vital need in the body economy by facilitating the mobilization of fat from the liver. In animals and man receiving a diet inadequate in these lipotropic materials, accumulation of fat in the liver occurs. This can be readily reversed by the administration of lipotropic agents. It is important to note, however, that in the presence of an adequate diet, the administration of additional amounts of these lipotropic agents does not further decrease the accumulation of fat in the liver parenchyma. The lipotropic effect on the liver is normally a prophylactic one and not therapeutic, except after severe deficiency. Recently, Wilgram, Hartroft, and Best[7] have for the first time observed that, in young rats with experimental choline deficiency, abnormal quantities of lipids are deposited in the aorta and coronary arteries. This is the first demonstration that choline deficiency can influence lipid deposition in blood vessels. However, they found this to occur only in animals with severe dietary deficiency, and there is no evidence that this occurs otherwise. This is an important distinction because the mobilization of fat from the liver in lipotropic deficient animals and man and the deposition of lipid in the coronary arteries and aorta in the presence of choline deficiency is a different matter from expecting beneficial effects from the administration of large amounts of lipotropic agents to animals without any antecedent dietary deficiency. There is no acceptable evidence either in man or animals that atherosclerotic lesions can be retarded or reversed by the administration of either one or several lipotropic agents in combination, and there is considerable evidence that the administration of large amounts of these dietary supplements to patients with moderate degrees of hepatic damage may be detrimental.[8]

COMMENT

Atherosclerosis and its complications remain a leading cause of death, because no drug or other therapeutic technique is satisfactory for its control. Indeed, because of the interplay of genetic, physiological, biochemical, and pathological influences that alter the rate of development of atherosclerosis, there is little likelihood that any consistent method for the prevention of this disorder will develop in the near future. As has been indicated there are no drugs that, at least in man, are effective agents in preventing the arterial corrosion that characterizes arteriosclerosis. Just as in a plumbing system, the quality of the piping, as well as the corrosiveness of the fluid passing through the pipes, determines the "rusting" that takes place, in man the character of the arterial wall itself plays a major role in the development of atherosclerosis. Until more understanding is obtained about the metabolism of cholesterol in the arterial wall itself, no drugs can be recommended as a rational means of preventing atherosclerosis.

The following factors seem to act against the development of atherosclerosis: (1) having forebears, including both parents and grandparents, who are long-lived and come from long-lived families; (2) being a woman, preferably, a woman under 45 years of age; (3) eating a normal diet, avoiding excessive caloric intake, but including ample supply of protein; and (4) solving emotional conflicts, and particularly, for physicians, the fear of having coronary atherosclerosis, by some other means than becoming obese or developing hypertension.

3941 O'Hara St. (13).

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OCCIPUT POSTERIOR POSITION

SIX YEARS' EXPERIENCE AT PARKLAND HOSPITAL

Douglas M. Haynes, M.D., Dallas, Texas

The many authors of the past two decades who have discussed the subject of posterior positions of the fetal occiput have consistently adhered to one or the other of two opposite viewpoints regarding the clinical importance of this fairly common obstetric situation. These viewpoints are well expressed in the following pair of representative quotations. Melhado[1] writes, "... it (occipitoposterior position) is conceded by all to be the most common obstetric anomaly and is responsible for a higher fetal wastage and greater maternal injury than almost any other condition." In startling contrast, Calkins[2] says, "... occiput posterior presentation adds nothing to fetal mortality if treated in the same way we treat occiput anterior presentation. Maternal morbidity is likewise unaffected." It would seem that additional clinical studies are needed.

This report presents data from 360 women with occiput posterior positions of their fetuses delivered at Parkland Hospital between 1947 and 1952 of infants weighing 1,500 gm. or more. On the basis of this material, I wish to present a simple, workable plan possessing several advantages over some other commonly used methods for clinical management of the occipitoposterior position.

INCIDENCE

The incidence of occiput posterior at Parkland Hospital for the years 1947 to 1952 is summarized on table 1. No woman whose infant weighed less than 1,500 gm. was included in the series because occiput posterior position is not a problem when the child is nonviable. The incidence of 2.9% of occiput posterior diagnosed during labor is low in comparison with other published series. The figure indicates lack of recognition of the position early in labor and is partly explained by the fact that many patients do not allow examination until their labor is far advanced. In fact, as the table indicates, all but 0.3% of recognized occipitoposterior position in the series represent patients with persistent occiput posterior. Since the clinical problems arising specifically as the result of posterior positions of the occiput are almost all related to persistence of those positions, these patients make up a series that is thoroughly adequate for evaluating the method of management. The incidence of 2.6% persistence of the posterior position is in line with that previously reported by others.

DURATION OF LABOR

The duration of total and second stage labor in the patients with fetuses in occipitoposterior positions is indicated by table 2. I define "prolonged labor" as that condition exhibited by a parturient who has not been delivered after 30 hours or more of objectively observed uterine contractions capable of bringing about progressive effacement and dilation of the cervix. There was prolongation of labor by these criteria in 29 women of this series—a somewhat higher incidence of this complication for the occiput posterior than for the over-all clinic group, but one that falls far short of a statistical indication of any drastic influence of the occipitoposterior position on the duration of labor. It will be noted that 324 of 360 women were delivered less than two hours after the cervix had become completely dilated. This figure reflects a cardinal point in the method of management favored by Parkland Hospital, namely, prompt delivery after the second stage has been reached. The often repeated statement that occipitoposterior positions are associated with serious problems of exhaustion due to prolongation of the second stage of labor is true only if one insists that complete spontaneous anterior rotation of the presenting head must have occurred before delivery can be safely undertaken. I do not believe that such insistence is justified.

TYPE OF DELIVERY

Several important facts about the clinical management of delivery from occipitoposterior positions are illustrated by table 3. It is particularly significant that 59.2% of these patients were delivered spontaneously, since almost all of them were delivered with the occiput directly posterior. Generally, forceps extraction is elected in primigravidas when the cervix is fully dilated and the head is on the pelvic floor; the indicated 28.3% incidence of low forceps operations reflects this policy. The frequency of mid-forceps operations has dropped steadily as the understanding and recognition of cephalopelvic disproportion have improved, and it should be pointed out that most of the 45 mid-forceps operations performed on patients in this series were done during the first two years of the six year period covered in the study. I also wish to underscore the fact that in no patient did the occipitoposterior position motivate the performance of cesarean section.

FETAL MORTALITY

Three hundred eighty-four children were born to the 360 women in this series. Eighteen of these infants died, as indicated in table 4. Fifteen of these deaths conceivably could be related to the occipitoposterior position, although such a relationship should not be dogmatically assumed. Five of these infants were examined post mortem; in two of them, the cause of death was fetal atelectasis, and in each of the others it was, respectively, pneumonitis, septicemia, and undetermined. None of these five infants exhibited postmortem evidence of intracranial hemorrhage or other lesions suggestive of trauma of delivery.

From the Departments of Obstetrics and Gynecology of Parkland Hospital and the University of Texas, Southwestern Medical School.

Read before the Section on Obstetrics and Gynecology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23, 1954.

1. Melhado, G. C.: The Occipitoposterior Position: A Method of Management, with an Analysis of 976 Cases, Tr. Am. Gynec. Soc. **58**: 187, 1933.

2. Calkins, L. A.: Occiput Posterior Presentation, Obst. & Gynec. **1**: 466, 1953.

ANESTHESIA

The types of anesthesia used for delivery of the women in this series are listed in table 5. Since some type of spinal anesthesia was used in about one-third of the patients, this factor might account for persistence of the posterior position in at least some of them. There are two reasons why such an opinion is not tenable: 1. Spinal anesthesia was not induced in any patient until delivery was imminent. 2. The over-all incidence of persistence of occipitoposterior positions was less than that of other well-studied series in which conduction anesthesia was not used at all. An appreciable number of patients give birth en route to, or just after arriving at, the delivery room suite. This fact accounts for a significant part of the group of 77 women who received no anesthetic.

TABLE 1.—*Occiput Posterior Incidence*

Total Births with Cephalic Presentation 12,488		No.	%
Occiput Posterior			
Diagnosed during labor		360	2.9
	Primigravidas	60	
	Multigravidas	300	
Delivered as such		324	2.6
	Primigravidas	55	
	Multigravidas	269	

TABLE 2.—*Duration of Labor*

Length of Labor, Hours	Primigravidas	Multigravidas	Total
Total			
Less than 10	13	172	185
10-29	42	104	146
More than 30	5	24	29
Second stage			
Less than 1	20	228	248
1-2	23	53	76
More than 2	14	17	31
Undetermined	3	2	5

TABLE 3.—*Type of Delivery*

	Primigravidas	Multigravidas	Total No.	Total %
Spontaneous	11	202	213	59.2
Low forceps	39	63	102	28.3
Mid forceps	10	35	45	12.5
Cesarean section	..	...	...	....
Total	60	300	360	100

MATERNAL PROGNOSIS

There was no maternal mortality in this series, nor were any serious permanent sequelae traceable to the occipitoposterior position. Puerperal morbidity showed no increase over that recorded for all women delivered in Parkland Hospital during the same time interval. Injuries sustained by maternal soft tissues are indicated in table 6. By "third degree tear" is meant a vaginal laceration that disrupts the external anal sphincter and involves the rectal mucosa. A "second degree tear" is defined as any laceration that involves the perineal musculature but does not fulfill the above criteria for third degree tears. The data clearly indicate that delivery of the fetal head from the directly posterior position did not result in any serious maternal sequelae, either immediate or remote.

COMMENT

From the experience summarized above, the following simple working plan has been formulated for the management of persistent posterior positions of the fetal occiput: 1. The first stage of labor is managed exactly as in occiput anterior. 2. If an obliquely posterior position persists after 45 minutes of second stage labor and manual rotation cannot be easily performed, it is concluded that the head has become molded in the posterior position. One then proceeds immediately with low forceps rotation to occiput directly posterior, followed by prompt delivery as such after performance of adequate mesiolateral episiotomy.

Experience at Parkland has specifically discouraged adoption of that classically ultraconservative attitude that advocates prolongation of the second stage of labor until complete spontaneous anterior rotation of the head has occurred. Such a plan invites the complications of secondary uterine inertia even if the anterior rotation is ultimately achieved. Furthermore, it is clear from the data that posterior rotation of the occiput actually takes place in many of these patients late in labor, the time-hallowed classical teachings on the subject to the contrary notwithstanding. Again, the staff at Parkland Hospital believes that the fetal head that has become firmly molded in the posterior position is far more likely to be damaged by anterior than by posterior rotation. This is especially true if the operator is an apprentice rather than a master in the obstetric art, as is the case with residents. In summary, this analysis of experience with occipitoposterior positions, largely of the persistent type, seems to refute the familiar contention that this "anomaly" of labor is so fraught with potential complications that it is a bête noire of obstetrics. The staff at Parkland believes with Calkins [2] and others that the mechanism of labor in occiput posterior, whether persistent or not, is actually neither anomalous nor ominous.

TABLE 4.—*Fetal Mortality*

		No.	%
Mortality			
Gross		18	4.7
Corrected		15	8.9
	Less than 2,500 gm.	2	
	Prolapsed cord	1	

TABLE 5.—*Anesthesia*

	No.	%
Inhalation	72	20.0
Conduction		
Spinal	121	33.6
Pudendal	85	23.6
Caudal	5	1.4
None	77	21.4

TABLE 6.—*Injuries to Maternal Soft Tissues*

Type	Primigravidas	Multigravidas	Total No.	Total %
Third degree tears	1	6	7	1.9
Second degree perineal tears	4	11	15	4.2
Cervical tears requiring hemostasis	2	..	2	0.6
Vaginal tears requiring hemostasis	5	12	17	4.7
Total injuries to maternal soft tissue	12	29	41	11.4

SUMMARY AND CONCLUSIONS

In 12,488 cephalic births at Parkland Hospital over a six year period, there were 360 instances, 2.9%, in which fetuses weighing 1,500 gm. or more were found to be presenting in occipitoposterior position during labor. Three hundred twenty-four of these fetuses, 90%, were delived as such. Labor was prolonged more than 30 hours in 29 instances, or 8%. Spontaneous delivery after unaided rotation to the directly posterior position was observed 213 times, or in 59.2% of deliveries. The incidence of low forceps extraction was 28.3%. Eighteen of 384 infants died, or 4.7% gross mortality. There was no maternal death or serious maternal sequel attributable to the posterior position. These results were obtained by residents in training as the result of a departmental policy that emphasizes conservative operative delivery when the second stage of labor threatens to be prolonged. The data indicate that occipitoposterior positions, whether persistent or not, ought not to be considered as an abnormal mechanism.

2211 Oaklawn Ave. (19).

CLINICAL NOTES

ACCIDENTAL INGESTION OF BISHYDROXYCOUMARIN

USE OF VITAMIN K_1 EMULSION IN TWO CASES

William B. A. Bentley, M.D., Waterbury, Conn.

With increasing use of bishydroxycoumarin (Dicumarol) and related drugs in the treatment of thromboembolic disorders, hemorrhage as a complication of the resulting hypoprothrombinemia has become a serious problem.[1] Diagnosis of the cause of bleeding in a patient known to be receiving anticoagulants rarely presents a problem; however, there have been recent reports of self-administration of bishydroxycoumarin by malingerers [2] in whom the cause of bleeding was difficult to establish. Ingestion of bishydroxycoumarin by accident has not been reported previously. This paper presents two cases in which hemorrhage occurred after bishydroxycoumarin was taken in the mistaken belief that it was aspirin. In both cases, rapid cessation of bleeding and return of the prothrombin time to normal followed intravenous administration of vitamin K_1 emulsion.[3] Suspicion that poisoning by a bishydroxycoumarin-like agent had occurred was confirmed by careful inquiry and by chemical analysis of the medicament.

From the Department of Medicine, St. Luke's Hospital, New York.

The vitamin K_1 emulsion used in this study (Mephyton) was supplied by Merck & Company, Inc., Rahway, N. J.

Chemical analysis was performed by Alexander O. Gettler, Ph.D., Chief Toxicologist, Office of the Medical Examiner of the City of New York.

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REPORT OF CASES

A 66-year-old, white, married woman was admitted to the hospital in the early morning of Dec. 21, 1953, with an 18 hour history of hemoptysis and hematuria. Eighteen hours before admission to the hospital she had become hoarse and started to cough up bright red blood in copious amounts. At the same time she noted blood in her urine. Because of these complaints her physician advised admission to the hospital.

There had been no previous history of abnormal bleeding or easy bruising. The patient had been accustomed to taking one or more sleeping pills at night, but since none had been available for the week prior to admission, she had taken instead two "aspirin" tablets every night.

On admission physical examination disclosed a lethargic, elderly, white woman with rapid, shallow, stertorous respirations. Temperature was 100.8 F rectally, pulse rate 120, respiratory rate 36, and blood pressure 140/80 mm. Hg. She had a weak cough productive of mucoid sputum mixed with old and fresh blood. There were numerous fresh ecchymoses over the arms, legs, and buttocks, and a small, fresh hemorrhage was seen in the fundus of the right eye. Loud tracheal rhonchi and inspiratory and expiratory wheezes were heard throughout both lung fields. The heart was normal. No other sites of bleeding were found in the abdominal, pelvic, or rectal regions.

Urinalysis showed gross hematuria. Hemoglobin was 12.4 gm. per 100 cc., red blood cells 4,100,000 per cubic millimeter, and hematocrit 42%. There were 15,200 leukocytes with 92% polymorphonuclear leukocytes, and there were 234,000 platelets per cubic millimeter. Blood urea nitrogen, serology, and liver function tests all were within normal limits. Bleeding time was normal, and clotting time by the capillary tube method was 12 minutes (normal 3 to 5 minutes). Prothrombin time [4] of undiluted plasma was 95 seconds (normal 15 to 18 seconds), less than 10% normal activity.

Course.—At the time of admission direct laryngoscopy revealed no bleeding above the vocal cords. After this procedure a hematoma of the right side of the tongue developed. Hematomas also appeared at the site of venipuncture. The markedly prolonged prothrombin time (95 seconds) indicated that the patient was suffering from a severe prothrombin deficiency. Accordingly, 312 mg. (5 mg. per kilogram of body weight) of vitamin K_1 emulsion was given intravenously. In three hours the prothrombin time had fallen to 47 seconds (10% normal activity), and there was no further evidence of pulmonary bleeding. Five hours after injection of the vitamin K_1 emulsion the prothrombin time was 21.7 seconds (27% normal activity); after 18 hours it was 18.4 seconds (42% normal activity); and after 20 hours it was 15 seconds (100% normal activity). Daily determinations thereafter were normal. Bleeding and clotting times the day after admission also were normal, and no further gross bleeding was observed. Microscopic hematuria persisted for 24 hours, and old blood was present in the sputum for four days. The patient's course was otherwise uneventful, except for elevation of the temperature for eight days. The hemoglobin level on the day after admission was 9.6 gm. per 100 cc., and the red blood cell count was 3,100,000 per cubic millimeter. The patient was given supplementary iron orally, and these values rose gradually.

On the evening after the patient's admission, her husband casually remarked to the resident physician that he had had three grossly bloody stools on that day. Rectal examination confirmed this observation, but no additional sources of bleeding were found. When it was determined that his prothrombin time was 35 seconds (11% normal activity), he was given 50 mg. of vitamin K_1 emulsion intravenously. Eighteen hours later the prothrombin time was 18.1 seconds (45% normal activity), and no further bleeding was reported.

Further questioning of the patient's husband disclosed that two years previously he had received bishydroxycoumarin as a clinic patient because of peripheral vascular disease. He had saved the drug after treatment with it was discontinued, as was his habit with all medicaments. Apparently he had transferred it to an empty aspirin bottle and then forgotten about it. Thus, for a week prior to his wife's admission to the hospital, both of them had taken one or two "aspirin" tablets every night in order to sleep. The suspected medicament was analyzed and proved to be bishydroxycoumarin.

COMMENT

The cases reported again dramatize the need for caution among physicians in the use of anticoagulants in the treatment of ambulatory patients. Intoxication from prothrombin-depressing drugs should be considered in the differential diagnosis of hemorrhagic states. In the cases reported herein the diagnosis was suspected but was not established until prompt response to the intravenous administration of vitamin K_1 emulsion occurred and analysis of the suspected medicament was completed.

SUMMARY

Intravenous administration of vitamin K_1 emulsion in two patients with hemorrhage resulting from accidental ingestion of bishydroxycoumarin brought prompt return of the prothrombin time to normal and cessation of bleeding.

101 N. Main St.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

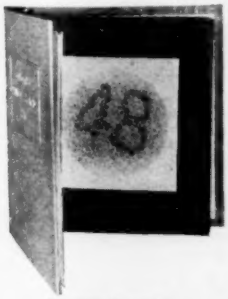
The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Dvorine Pseudo-Isochromatic Plates, Second Edition

Israel Dvorine, O.D., 2328 Eutaw Pl., Baltimore 17.

The Dvorine Pseudo-Isochromatic Plates, second edition, designed as a test for color blindness, are contained in a loose-leaf binder and arranged in two sections. Section 1 contains one demonstration plate (the numeral 48 in red dots on a background of blue dots) and 14 plates made up of several color combinations. Section 2 contains one demonstration plate (a trail of blue dots on a background of red dots) and seven plates featuring trails instead of digits. Each of these plates consists of different color combinations. The second section can be used in testing preschool children and illiterate adults. The plates are not intended for the broad study or individual diagnosis of peculiarities of color vision but for the quick detection of a particular, common defect in red-green discrimination.



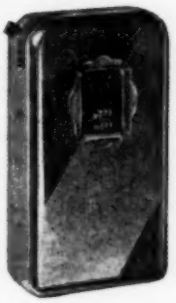
Dvorine Pseudo-Isochromatic Plates

The binder fits into a box measuring 18 by 18.5 by 3.5 cm. (7¼ by 7½ by 1½ in.). The shipping weight is 560 gm. (1¼ lb.).

Acousticon Hearing Aid, Model A-335

Dictograph Products Inc., 95-25 149th St., Jamaica 35, Long Island, N. Y.

The Acousticon Hearing Aid, Model A-335, is a tubeless instrument incorporating three transistors. Variation of the acoustic gain is adjusted by choosing from among five possible batteries: 1.25 volts, 22.8 gm.; 2.5 volts, 26.3 gm.; 4 volts, 13.5 gm.; 5.2 volts, 17 gm.; and 6.5 volts, 20.3 gm. Like several other makes of hearing aids, this model also uses a circuit utilizing transistors that lend themselves to this simple way of adjusting the power of the instrument.


Acousticon Hearing Aid, Model A-335

The body of the instrument measures 78 by 44 by 22 mm. and weighs 80 gm. without batteries. The earphone weighs 10.4 gm. and the receiver cord 2 gm., making the total weight between 105.9 and 118.7 gm., depending on the battery.

COUNCIL ON INDUSTRIAL HEALTH

ROLE OF THE PATCH TEST IN CONTACT DERMATITIS

The following report has been prepared by the Committee on Occupational Dermatoses of the Council on Industrial Health. The committee consists of:

John G. Downing, M.D., Chairman
Donald J. Birmingham, M.D. *George E. Morris, M.D.*
Harry Foerster, M.D. *Ray O. Noojin, M.D.*
James W. Jordan, M.D. *Leonard F. Weber, M.D.*
C. M. PETERSON, M.D., *Secretary.*

Materials capable of producing contact-type dermatitis (dermatitis venenata) are limitless. The expansion of industry and the introduction of new compounds and products have added to the list of agents that can cause not only occupational dermatitis among workmen but nonoccupational dermatitis among the consumer public. This challenge to dermatologists and others interested in the field of contact dermatitis has brought to the fore the value of the diagnostic patch test to provide aid in determining the causative agent in contact dermatitis of occupational or nonoccupational nature. In a given case of contact-type dermatitis, the offending agent may be obvious or may be extremely difficult to determine. Since therapy, prognosis, and further prevention are so dependent on the establishment of the cause in contact eruptions, every possible effort must be made to determine the causative agent. To this end the patch test introduced for diagnostic purposes by Jadassohn in 1895 has, after almost 60 years of experience, proved its worth as an aid in eliciting the causes of contact-type dermatitis. In no small degree, therefore, patch testing has become a most necessary part of the diagnostic armamentarium of the dermatologist. While the technique can be performed by any physician, knowledge of the indications for use, of the test substances, and of the interpretation of reaction calls for a fully informed and inquisitive diagnostic mind developed by experience.

It must be constantly emphasized that the patch test is but a recognized aid to be employed in establishing the cause of contact dermatitis. Under no circumstance can it be considered a substitute for taking a clinical history, noting the site of the eruption, observing the nature of the lesions, and following the course of the disease. The procedure has no place in the practice of industrial dermatology if the patient has a well-recognized, uncomplicated skin condition, such as pityriasis rosea or psoriasis. Its true value lies in those cases of dermatitis venenata due to sensitizers. The test should not be performed in cases of dermatitis due to primary irritants, nor should it be forgotten that primary irritants account for almost 80% of the cases of contact dermatitis.

DIAGNOSTIC PATCH TEST

The typical employment of the patch test is in the following circumstances: (1) to determine the cause of outbreaks or isolated cases of contact-type dermatitis in industry where workers are directly or indirectly exposed to sensitizing chemicals; (2) to determine the cause of outbreaks or isolated cases of contact-type dermatitis suspected of being caused by wearing apparel, cosmetics, plants, and other environmental contactants; and (3) to assist in the differentiation between occupational and nonoccupational dermatitis.

Covered Patch Test.—The procedure followed in the covered patch test technique consists of the application of a small amount of the properly diluted [1] suspected external sensitizer or agent to an area of the normal skin of the patient. The test material is then covered with a square of linen or 4-ply gauze (¾ to 1 in.) followed by a larger square (1 to 1½ in.) of cellophane and then sealed to the skin by a still larger square (2 in.) of adhesive.[2] As an alternate method one may simply moisten the linen or gauze in the properly diluted test substance and then apply the test material in the manner described above. The cellophane serves a dual purpose, namely to deter the rapid loss of solvent from the testing medium and to demarcate reactivity at the site of the contactant from that commonly associated with adhesive tape. For control purposes the absorbent fabric should be moistened with the solvent alone, allowed to dry for the same length of time as the test material, and then placed at a test site relatively well removed from the test patch.

Should the history show that the patient is highly reactive to adhesive tape the test substance should be covered with a moisture-proof material and held to the skin by cotton or elastic bandage. If the testing agent is fabric, leather, wood, or other similar substance, it should be dampened with water and then covered with linen, cellophane, and adhesive as outlined above.

A more specific description of the techniques employed in the covered patch test follow.[2a] In using liquid or ointment test substances a ¾ in. square of absorbent fabric, such as 4-ply gauze or flannel, is saturated with the appropriate concentration of liquid or ointment.[1] The excess is removed, and the patch is then applied to the test site of the skin. The contact material is next covered with a 1½ in. square of noncoated cellophane. Finally, a 3 in. square of adhesive plaster is used to seal the test material and the cellophane to the skin. Solid test substances may be soluble or insoluble in water. If insoluble in water they should be dissolved in the appropriate solvent. The absorbent fabric should then be immersed in the solution, excess material removed, and the impregnated fabric applied. Solid objects such as nickel coins, other metals, jewelry, solid plastics, and the like can be applied directly to the skin, covered with cellophane, and then adhesive tape. In order to avoid loss and to maintain contact with the skin, powders or crystals should be applied to the absorbent fabric, moistened, and then applied to the test site. As in patch testing with other materials, caution must be used in order to test with recommended concentrations.[1] In each of the above instances the patch test material should be left in place for 24 or 48 hours before removal. On occasion, as in testing with fabrics or wearing apparel, longer contact (72 hours) may be indicated before removal is effected. At the time of application of the patch test, the patient should be advised to remove immediately any of the tests that cause burning or itching.

Open Patch Test.—The open patch test is indicated when the patient has been in contact with a volatile substance and presents a history of having an eruption develop following exposure to vapors, fumes, mists, or gases suspected of inducing specific sensitization. The procedure consists in exposing the forearm of the patient to an open vessel containing the suspected contactant. After an exposure of a few seconds or minutes, rarely longer, the exposure source is removed or covered, and the resultant reaction, if any, is noted at the test site for the next several days. Variations of the open patch test in testing volatile substances are the celluloid chamber method of Rokstad [3] and Miescher's vapor test [4] as described by Weinberger.[5] In the former, the irritant solvent is placed on the skin and covered with a celluloid chamber affixed to the skin with adhesive tape. In the latter, a small cylindrical tube, open at both ends, is fastened to the skin, and a wad of absorbent cotton containing two or three drops of the test material is inserted into the upper opening. Then a cork is placed on the upper end and contact is maintained for two hours. Another method of open patch testing is to employ the uncovered patch. In this instance, certain substances, such as nail polish, shellac, paint, or dyes, are applied to the skin and left uncovered for 24 or 48 hours. If the test material is a low-grade sensitizer the period of contact can be longer than would be used for a known potent sensitizer.

Only under rare circumstances should diagnostic patch testing be performed with substances of unknown nature. All too frequently workers exhibiting dermatitis, sometimes generalized, are referred for patch testing with unknown chemical compounds. Tests should not be conducted until the examiner has ascertained the nature of the compound. Failure to observe this rule has resulted in severe reactions ranging from profound burns to severe exfoliative dermatitis.

PROPHETIC PATCH TEST

The prophetic patch test is well known by dermatologists, toxicologists, and others interested in the study of cutaneous sensitization. The technique is used mainly to enable manufacturers to determine in advance whether substances about to be marketed (detergents, cosmetics, clothing, synthetic fibers, etc.) are apt to cause contact dermatitis of primary irritant or sensitizing nature. Since the test materials are new, it is presumed that the test subjects have not had previous contact and, therefore, are not allergic to the test substances before the patches are applied.[6a] Two series of patch tests, 10 to 14 days apart, are performed with the test material on at least 200 and preferably 300, 400, or 500 subjects. A material already used satisfactorily for a similar purpose is used as a control test. If a large percentage of subjects react to the test substance after the first application, it usually indicates that the substance is a primary skin irritant. On the other hand, the first test may give rise to definite allergic reactions if some of the subjects have been previously sensitized to the material or one of its ingredients. The second series using the same subjects, the same materials, and the same test sites reveals the number of subjects, if any, sensitized by the test agent. If, after the two series of tests, the number of true sensitization reactions produced by the test substance does not exceed the number of reactions caused by the control substance, the test material can be distributed in a small community for a trial usage test. It cannot be overemphasized that the prophetic patch test technique is but a screening procedure that indicates only in a limited manner the sensitizing potential of a new material. Without an adequate usage test, unwarranted reliance placed upon the prophetic patch test can be hazardous.

QUANTITATIVE PATCH TEST

A third usage is that generally referred to as the quantitative patch test [7] whereby either the sensitizing index of a given substance may be determined in advance or the extent of a person's degree of sensitivity may be ascertained in the case of chemicals that are soluble in volatile solvents. The essential factors in the quantitative method are employed as known constants in order to derive quantitative results: (1) known amount

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1. (*a*) Rostenberg, A., Jr., and Sulzberger, M. B.: Some Results of Patch Tests: Compilation and Discussion of Cutaneous Reactions to About 500 Different Substances, as Elicited by Over 10,000 Tests in Approximately 1,000 Patients, Arch. Dermat. & Syph. **35**: 433-454 (March) 1937. (*b*) Schwartz, L.: Sensitivity to External Irritants in Industry, New York J. Med. **36**: 1969-1976 (Dec.) 1936. (*c*) Sulzberger, M. B.: Dermatologic Allergy: An Introduction in the Form of a Series of Lectures, Springfield, Ill., Charles C Thomas, Publisher, 1940, appendix 2, p. 540.

2. (*a*) Birmingham, D. J.; Campbell, P. C., Jr., and Schwartz, L.: Use and Abuse of the Patch Test, Indus. Hyg. News. **8**: 3-5 (June) 1948. (*b*) Bloch, B.: Occupational Skin Diseases from the Biological Point of View, J. State Med. **38**: 373-382 (July) 1930.

3. Rokstad, I.: New Modification of Patch Test (Chamber Method), Arch. Dermat. & Syph. **41**: 649-653 (April) 1940.

4. Miescher, G.: Die Dunstprobe beim Ekzem, Schweiz. med. Wchnschr. **70**: 93-94 (Feb. 3) 1940.

5. Weinberger, W.: The Patch Test—Its Technic and Interpretation, Arch. Indust. Hyg. **2**: 565-573 (Nov.) 1950.

6. (*a*) Schwartz, L., and Peck, S. M.: The Patch Test in Contact Dermatitis, Report 59, U. S. Public Health Service, 1944, pp. 546-557. (*b*) Sulzberger, M. B., and Wise, F.: The Contact or Patch Test in Dermatology: Its Uses, Advantages, and Limitations, Arch. Dermat. & Syph. **23**: 519-531 (March) 1931.

7. Dunn, J. E.; Mason, H. S., and Smith, B. S.: A New Technique for Performing Quantitative Contact (Patch) Skin Tests, J. Invest. Dermat. **6**: 323-336 (Dec.) 1945.

of test substance, (2) known concentration of test substance, (3) known area of test site, and (4) known time of test exposure. Each of these constants can be varied as the occasion demands.

To determine the sensitizing index of a substance one should patch test a large number of subjects (1,000), using a constant skin area and a constant amount of the test substance in a constant concentration, and allow the test substance to maintain contact for a constant period of time. The number of reactors will provide a fair indication of the sensitizing index of the test substance. To determine a person's degree of sensitivity one should patch test the subject with several patches, using constant skin areas and a constant length of time and varying the amount or the concentrations of the test substances. Using a constant area of skin, a constant amount of the test substance, and a constant concentration of the test substances on several persons for a constant length of time, the degree of reactions obtained will provide a fair indication of the relative sensitivity of the persons.

SITE OF APPLICATION

While patch tests may be applied to almost any part of the body, Downing [8] notes as a result of a questionnaire that most dermatologists prefer the inner or flexor aspect of the arm or forearm. These sites are of value because of the ease of approach and because the patient can and should remove the test at any time that itching or burning is noted at the locus of the applied test material. Finally, the patient can see the test site after the suspect material has been removed. Patch tests applied to the face and neck are mentioned only to discourage the use of these sites except in rare instances.

INTERPRETATION

Correct interpretation of the patch test reaction, whether it be diagnostic, prophetic, or quantitative; closed, open, or uncovered, is of great importance in arriving at a correct diagnosis. The readings should be made at 24, 48, and 72 hours after the removal of the test material. The reactions are graded zero to five as follows [2b]: zero, no reaction; one, redness; two, redness, swelling, and papules; three, intense redness, swelling, papules, and vesicles; four, confluent blisters; and five, desquamation, oozing, and necrosis.

Positive Reactions.—The positive reaction is usually the result of primary irritation or a sensitization phenomenon. In the case of either, the reaction can be any one of the above readings, depending upon the degree of irritant or sensitization response. With the sensitizer the patch test is used as an eliciting reaction, presupposing that the sensitizing contact and the required period of incubation have already occurred. A positive reaction caused by the suspected offender indicates that the subject was sensitive at the time of the test. This decision must be based upon the exclusion of advential effects that must be well known to the examiner. For example, upon removal of the patch, a 15 minute interval should pass before the results of the test are interpreted. This time interval is necessary so that the skin may recover from the pressure of the patch test substance, i. e., absorbent fabric or solid. If this procedure is not followed, the mild erythema of pressure, the presence of dermographia, or the transient edema and erythema produced by sweat duct blockage may create an impression of a positive reaction that in reality is negative. The true erythema of the specific reaction to the test agent persists for several hours and sometimes days after the test is removed. When delayed reaction is evident 24, 48, or 72 hours after removal of the test substance, a lower order of sensitivity is suspected than if an immediate reaction is present.

False Positive Reactions.—False positive reactions [9] may occur (1) when the patient has generalized dermatitis and is nonspecifically reactive to many substances, (2) when primary irritants are used for patch testing, and (3) when the patient has been previously sensitized by exposure to a substance and is patch tested to that substance notwithstanding the fact that there has been no contact with the material for some months or at the time of developing the eruption.

Negative Reactions.—The patch test, when correctly negative, is supportive of negative clinical findings and indicates an absence of primary irritant or sensitization reaction from the test material. Under certain conditions, however, a negative test may be misleading [9] because: 1. The patch test may not have been performed with the actual offending agent. 2. The test substance may not have equalled the offending substance in strength or quantity. 3. Adjuvant physical or mechanical factors may be necessary to produce dermatitis. 4. Hyposensitivity may have developed since the patient contracted the original dermatitis. 5. In localized sensitivity the appropriate testing agent may fail to elicit a reaction in areas far removed from the site of dermatitis.

WARNINGS

Before any of the above patch tests are made, it is of prime importance for the physician making the test to understand and follow a well-recognized dictum[6] and carefully avoid the use of primary cutaneous irritants in performing the patch test. Primary irritants are agents that will cause dermatitis by acting directly on the normal skin at the site of contact if permitted to act in sufficient intensity or quantity for a sufficient length of time. They include kerosene, gasoline, and strong solutions of acids, bases, and solvents. As distinguished from primary irritants, the cutaneous sensitizers are agents, such as cosmetics, penicillin, dyes, and nail polish, that do not necessarily cause demonstrable cutaneous changes on first contact but may effect such specific changes in the skin that, after five to seven days or more, further contact on the same or other parts of the body will cause dermatitis.[6a]

Patch tests should not be applied if the patient suffers from a generalized skin disease. Testing at such a time may not only produce false positive reactions but may cause an exacerbation of the existing skin condition. Experienced dermatologists refuse to test such patients until their dermatitis is under control. While lists of recommended chemical concentrations for testing have been published,[10] the primary irritant concentration for a substance on a normal person would be higher than that for a person with eczematized skin. In using such lists of concentrations for testing, then, it must be kept in mind that, while the recommended strength may not be an irritant to the normal skin, it can act as an irritant to the abnormal skin.

In performing patch tests with substances of questionable irritating or sensitizing potential, it is well to place only a few drops or granules on the skin and observe the patient in the office for an hour. This rule is particularly significant in patch testing patients who have suffered from generalized eruptions. It is far better to take this extra time and precaution than to chance encountering an exacerbation of the eruption that can begin within a few minutes after injudicious application. Too many chemically related materials should not be applied at any one time, for if the patient has been sensitized to one of them they all may cause reactions with severe systemic complications. Proper dilution is called for, and the lists that have been published [1] should be consulted in any specific case.

SUMMARY AND CONCLUSIONS

Diagnostic patch testing, when properly performed and correctly interpreted, is of definite value in assisting to establish the cause in many cases of contact dermatitis due to sensitization. The employment and validity of the test is highly dependent upon the clinical history, the nature of the lesions, the site of the eruption, and the course of the disease. In order to insure the intelligent use of the procedure the examiner should be well acquainted with the chemical nature of the contactants handled at work, in the home, at play, in certain hobbies, and in modern therapy.[9] Proper concentration of the test material is of the utmost importance in performing the patch test. The specific technique to be employed will vary according to the substance in question. Primary irritants should not be used for patch testing except in nonirritant concentrations. The eczematized skin has a lower threshold of reactivity of specific and nonspecific nature than does the normal skin. The prophetic patch test is valuable for screening new materials for their cutaneous, irritant, and sensitizing potential. For the test to be highly effective, however, it must be followed by a usage trial. Of major importance is the fact that the patch test is continually subject to change and refinements and that absolute reliance upon its results in all cases of contact-type dermatitis is not justifiable.

8. Downing, J. G.: Results of a Questionnaire on Patch Tests: Analysis of Answers by 211 Dermatologists and 55 Industrial Physicians, Arch. Dermat. & Syph. **48**: 514-518 (Nov.) 1943.

9. Downing, J. G.: Are Patch Tests of Real Value in Dermatology? New England J. Med. **219**: 698-704 (Nov. 3) 1938.

10. Footnote 1, *b* and *c*.

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PHYSICIANS AND THE AMENDMENTS TO THE SOCIAL SECURITY ACT

A great deal of space has been devoted in the public press during the past several months to amendments to the Social Security Act. Many of the comments made have dealt with the position of the American Medical Association on the subject. These comments and a number of inquiries from individual physicians indicate that a review of the views of the medical profession is again necessary in order to remove any doubts that may remain.

It is important to remember that representatives of the American Medical Association testified on only two aspects of the bill during the 83rd Congress. They were: (1) *compulsory* coverage of physicians under the Old-Age and Survivors Insurance provision of the act and (2) the so-called waiver of premium provisions for total and permanent disability. We were and are opposed to each of these features, for sound, reasonable, and compelling reasons. The bill, which was finally enacted as Public Law 761, 83rd Congress, approved Sept. 1, 1954, did not include compulsory coverage but did include "waiver of premiums."

On at least four different occasions, the House of Delegates of the American Medical Association has gone on record as opposing compulsory coverage of physicians under Title II of the Social Security Act, the latest being at the San Francisco meeting in June of this year; however, the Association interposed no objection to voluntary coverage, a fact that is often overlooked. The original House bill (H. R. 7199) included a provision for compulsory coverage. The House Ways and Means Committee first voted to report the bill with this feature included. After it received an avalanche of telegrams, letters, and personal messages from physicians all over the United States, that committee wisely reversed its position. The bill passed the House in that form and in the Senate was referred to the Senate Finance Committee. That committee, likewise taking note of the overwhelming sentiment among physicians, decided to leave out the provisions relative to compulsory coverage. It is worth repeating that, throughout, the Association has interposed no objection to voluntary coverage.

Why has the medical profession objected to compulsory coverage under Title II? First, as Dr. F. J. L. Blasingame stated before the Senate Finance Committee on April 6, 1954, "We consider it absolutely incompatible with the free enterprise system for a group to be compulsorily covered under a governmental system of old age benefits when that group strongly and with great force opposes such coverage." Second, members of the medical profession would prefer to plan for their own security in old age rather than "leave it up to the government" to do so. Third, only a very small proportion of self-employed physicians retire at age 65—in fact, most continue working until after age 74. In 1950 about 85% of all physicians between 65 and 74 years of age were still in active practice. Thus, they would be forced to pay taxes and would receive no benefits. Fourth, to establish age 65 as the retirement age would be to place the weight of governmental incentive behind a program to encourage physicians to retire at 65. If this "encouragement" is heeded it would remove from general practice in small towns many practitioners who are urgently needed. Finally this governmental program just does not fit the economic patterns of the self-employed physician—why, therefore, should he be forced under it?

The other aspect of this legislation to which the medical profession has objected and which was included in the bill that passed, is the so-called waiver of premiums and the preservation of "insurance" rights of persons with extended total disability. This provision was in the bill as finally enacted. The objections of the profession to this provision arise in part from the realization that it will provide the mechanism for a federal cash permanent and total disability program and in turn for a full program of compulsory sickness insurance. Moreover, it introduces a relationship between the federal government and all private physicians that is profoundly disturbing. It is not unlikely that this waiver of taxation benefit will be followed by extension of the waiver of tax to the temporarily disabled and that eventually cash benefits will be provided. In fact, numerous bills have already been introduced to effect this change.

The Association is not lacking in sympathy for those who are unfortunate enough to become disabled; it just believes that the proposed method of easing their situation is a dangerous one and that an alternative method, without the dangers, is readily at hand. Instead of including wages during an active working lifetime the Association has suggested as an alternative the use of a man's income during his 5 or 10 best years in computing retirement benefits, with an allowance in the form of increment years for each year of gainful employment. We believe this proposal should have been thoroughly and sympathetically explored.

We believe that our position on these two subjects is eminently sound and reasonable. Those who criticize the Association's position on compulsory coverage seem to overlook the fact that no objection was raised to voluntary coverage, and those who criticize the Association's position on the "waiver of premiums" provision overlook the fact that a reasonable alternative was suggested. It is vitally important for the medical profession to continue to stand on principle and what is right in these matters rather than what is expedient.

PATCH TESTING

Introduced by Jadassohn,[1] developed by Bloch,[2] and popularized by Wise and Sulzberger,[3] the patch test immediately intrigued insurers and members of industrial accident commissions. They thought the patch test would be the real answer as to whether a case of dermatitis venenata was occupational in origin. Thereafter many members demanded proof in the form of a positive test before granting compensation to a worker suffering from an alleged occupational dermatitis; however, the haphazard use and misinterpretation of these tests, as well as the severe untoward reactions, soon caused doubt regarding their practicability. One case,[4] in which a commissioner insisted a patch test be made with a notorious sensitizer, caused such disability that it involved untold suffering to the patient and resulted in conflicting legal opinions regarding the liability of the insurer to the claimant and physician and the rights of the claimant over the physician and insurer.

The reliability of these tests depends on their proper performance and intelligent interpretation. So great was the controversy regarding their value that 211 dermatologists and 55 industrial physicians were interrogated as to the usefulness of the test. The final conclusions from this questionnaire indicated that "patch tests, while they have their limitations, are of definite value. Careful taking of the history, knowledge of the patient's exposures, personal investigations and study of the various contacts will reduce the necessity of routine patch tests, but when needed they will continue to be of distinct value in dermatology." [5]

The prophetic patch test is also valuable but also has its limitations. Considering the many chemicals and materials used in industry, especially the textile industry, both the prophetic and the routine patch test are extremely useful. First of all, these tests should reveal the causative factor among the workers preparing the material for future wearing; secondly, these materials should be properly tested before being sold to the public; otherwise, they may cause great discomfort and disability to the wearers. If the tests are done in a haphazard manner, with varying interpretation from physicians as to whether a chemical or material has highly sensitizing or irritating properties, great confusion results. Therefore, there should be a standard routine for the test. The procedure can be performed by almost anyone. Proper interpretation of the test is, however, most important. The misuse of the prophetic test has led to serious complications for manufacturers who are investigating the sensitizing effects of a new material. Recent differences of opinion as to whether a new material was harmless to wearers prevented one company from putting the very costly material on the market.

Inasmuch as there has been little recent publicity regarding the patch test and inasmuch as in many areas it has fallen into disuse through misuse, the Committee on Occupational Dermatoses of the Council on Industrial Health deemed it of value to review the subject. Their report is published in this issue (page 497). From time to time this committee will try to stress the need for recognition and prevention of well-known industrial dermatoses and also to keep physicians and interested persons informed regarding industrial dermatology. The committee is not new but has been in existence for several years. Both its former and its present members have done a tremendous amount of work in the prevention of occupational dermatoses, most of which can be prevented. Prevention is the major problem stressed by the committee.

TETANUS IMMUNIZATION

Tetanus toxoid cannot be used to prevent tetanus if the patient has never before received the material. Active immunity, induced by tetanus toxoid, is a slow process that requires weeks or months. In case the patient has not received the last dose of the immunizing series at least one week before injury, an adequate dose of antitoxin is indicated. Reliance cannot be placed on natural infection with the tetanus bacillus to act as a booster dose in a patient previously given the entire series of injections of tetanus toxoid. The stimulus from a possible tetanus bacillus infection is inadequate. There is no substitute, with the possible exception of tetanus antitoxin, for a booster dose of tetanus toxoid when definitely indicated. Tetanus toxoid must be administered despite recovery from one or more attacks of tetanus. Strangely, tetanus is not an immunizing disease. Emil von Behring's laboratory assistant sustained three attacks of tetanus, from which he recovered. Accidental exposure to the tetanus bacillus, although repeatedly experienced, does not confer active immunity to tetanus. In contrast with diphtheria, herd immunization, by repeated subclinical exposure, does not exist. Under specified circumstances, tetanus antitoxin (minimum dose of 10,000 American units) must be used in addition to the usual booster dose of tetanus toxoid. These indications are: (1) poor general health or the presence of diseases of a debilitating nature; (2) considerable blood loss at the time of injury, as in military combat or vehicle accidents; (3) delay of several days in the administration of an indicated booster dose of toxoid; and (4) the presence of local lesions (compound fractures, severe lacerations, etc.) considered very likely to result in clinical tetanus.

In contrast to what has just been indicated, when a patient has not received at least one injection of tetanus toxoid, antitoxin and toxoid should not be administered at the same time. The toxoid will not interfere with the antitoxin; but the antitoxin will interfere with the toxoid. The toxoid must be administered later, at a time when the passive immunity, conferred by antitetanic serum,

1. Jadassohn, J., in Sulzberger, M. B., and Wise, F.: The Contact or Patch Test in Dermatology: Its Uses, Advantages and Limitations, Arch. Dermat. & Syph. **23**: 519-531 (March) 1931.

2. Bloch, B.: The Role of Idiosyncrasy and Allergy in Dermatology, Arch. Dermat. & Syph. **19**: 175-197 (Feb.) 1929.

3. Sulzberger, M. B., and Wise, F.: The Contact or Patch Test in Dermatology: Its Uses, Advantages and Limitations, Arch. Dermat. & Syph. **23**: 519-531 (March) 1931.

4. Downing, J. G.: Legal Aspects of Patch Tests, Arch. Dermat. & Syph. **44**:63-65 (July) 1941.

5. Downing, J. G.: Results of a Questionnaire on Patch Tests: Analysis of Answers by 211 Dermatologists and 55 Industrial Physicians, Arch. Dermat. & Syph. **48**: 514-518 (Nov.) 1943.

has reached a minimal level. The disappearance of the inhibiting effect of passively received antitoxin is more important in the early development of active immunity from toxoid than the time at which the injection of toxoid is started. An injection of 1,500 American units confers titratable immunity for 2 to 3 weeks, 10,000 units for 6 to 10 weeks, and 100,000 units for 8 to 11 and possibly more weeks. Every patient who receives tetanus antitoxin should be called back to the physician's office to receive tetanus toxoid at the appropriate time. Otherwise, the hazard of acute serum sickness must be anticipated in the event of indicated injections of tetanus antitoxin. Some type of constant reminder, such as a visible index card system, should be used lest the physician forget. The body retains an impression from each injection of antigen (toxoid). Consequently, when the indicated immunization program has not been completed, one may "carry on" as though no interference with the program has occurred; it is not necessary to start all over again. Thus, if one injection of potent tetanus toxoid has been administered, several years later the second dose may be given, thereby completing the series. Obviously, patients should not be informed of this fact, except when such delay has supervened, so that they will not be lax about completing a series of injections.

DOGS DO NOT HAVE PINWORMS

Much has been written on diseases of animals transmissible to man. This is an important subject, but the coin has another side: some parasites found in man do not originate or spend any part of their life cycle in animals, domestic or otherwise. Very little has been written on this subject, but Turk [1] has written a brief informative account of his experiences with the false accusations of animals, usually pet dogs or cats. Some strange objects passed in the feces of one patient and thought to be parasite ova transmitted by a pet dog were shown to be grape seeds. The parents of a child who had a dog and who had been treated for roundworms kept such a close vigil on the child's stools that they sent a supposed worm to the laboratory. They were relieved but somewhat chagrined to find that the "worm" was an indigestible fiber from a string bean. Another patient with a great deal of hair on his forearms and a great love of horses found some strange parasites on the dorsum of his wrists. These proved to be pubic lice and were not acquired, as he believed, from his favorite mount.

A physician treating a child for pinworms is ill advised to recommend that the parents of the child get rid of the pet dog or cat. Enterobius vermicularis occurs only in man. Such pinworms as may be found in any other animal are of an entirely different species and are peculiar to that animal only. A better knowledge of parasitology, entomology, and helminthology on the part of physicians would help to prevent the types of error cited, but in any case an innocent pet should not be blamed until convincing evidence has been produced and the suspected parasites positively identified.

1. Turk, R. D.: Parasites Not Transmissible from Animals to Man, North American Vet. **35**: 609-610 (Aug.) 1954.

"HOURLY WAGES" OF PHYSICIANS AND DENTISTS

The recent series of articles in the *Journal of the American Dental Association* summarizing the results of a survey conducted by its Bureau of Economic Research and Statistics of the hours, incomes, and other aspects of dental practice indicates that the average work week of the dentist in 1952 was 43.3 hours.[1] The 1950 survey of the dental profession set the average at 42.2 hours. The Bureau of Medical Economic Research of the American Medical Association reviewed the data on hours worked by physicians, furnished by 30,000 physicians in the survey of their 1949 incomes; this survey was conducted jointly by the Bureau and the United States Department of Commerce, but neither has published the data on hours worked. Physicians averaged more than 56 hours a week, general practitioners more than 60 hours, and some specialists, 50 to 56 hours. It is interesting to compare the hourly earnings of dentists and physicians by distributing the net annual earnings over the number of hours worked, with the number of hours computed according to prevailing practices of large employers in the United States regarding overtime pay. Usually, the employer allows 12 hours' pay for the first 8 hours in excess of 40 hours a week and 16 hours' pay for the second 8-hour overtime period; that is, employees receive 68 hours of pay for 56 hours of work. On this basis, the average "hourly wage" of physicians was $3.13 in 1949 and, on the basis of small sample studies of the U. S. Department of Commerce, $3.26 in 1950 and $3.54 in 1951. The comparable "hourly wage" of dentists was $3.01, $3.12, and $3.31. These averages were computed on the basis of 68 hours a week for physicians and 45 hours a week for dentists. The annual net earnings were prorated over 52 weeks, although self-employed physicians and dentists worked fewer than 52 weeks. For the purpose of comparing their hourly earnings with those of employed persons, however, it is necessary to allow several weeks for vacation, holidays, and sick leave. As a matter of fact, office employees at A. M. A. headquarters are allowed approximately 25 days, or 5 weeks a year, for vacation, holidays, and sick leave. Incidentally, there is evidence that physicians work more regularly on holidays than do dentists. Even if the annual net earnings were prorated over 49 weeks instead of 52 the 1951 "hourly wages" would be increased only from $3.54 to $3.75 for physicians and from $3.31 to $3.51 for dentists. Within this frame of reference of prevailing rules regarding overtime pay, it appears that psysicians and dentists are earning less than $4 an hour and that the long work week, particularly of physicians, should be a major factor in any economic analysis of professional incomes.

1. The first article in the series, under the general title, The 1953 Survey of Dental Practice, was published in the December, 1953, issue of the Journal of the American Dental Association and the summary article in August, 1954 (vol. 49, pp. 221-224).

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

ADVISORY BOARD FOR MEDICAL SPECIALTIES

B. R. KIRKLIN, Secretary-Treasurer
Rochester, Minn.

Because of the overwhelming amount of material, the following pages concerning the American specialty boards are continued in this issue from the annual Internship and Residency Number of THE JOURNAL, *Sept. 25.*—ED.

The Advisory Board for Medical Specialties was organized in 1933-1934 to coordinate graduate medical education and certification of medical specialists in the United States and Canada. A few specialty boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate education and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondarily, these boards hoped to improve the general standards of graduate medical education and facilities for special training.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the national societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining boards and using the title American board. In order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an advisory board to give consideration to those problems common to all and to represent all organizations concerned.

The Advisory Board is composed of two representatives from each of the approved examining boards in the medical specialties and such other national organizations as are interested in the education, examination, and certification of medical specialists. These representatives are duly elected to this body.

The number of organizations comprising the Advisory Board for Medical Specialties remains the same; namely, 18 specialty boards and 4 other organizations interested in graduate medical education. The total voting membership is still 44. The organizations and their representatives are as follows:

CURRENT MEMBERSHIP IN THE ADVISORY BOARD FOR MEDICAL SPECIALTIES—1954-55

Association of American Medical Colleges
WILLIAM S. MIDDLETON — STANLEY E. DORST *

The American Hospital Association
FRANK R. BRADLEY — ROBIN C. BUERKI *

The Federation of State Medical Boards of the U. S. A.
CREIGHTON BARKER — WALTER L. BIERRING *

The National Board of Medical Examiners
JOHN P. HUBBARD — ROBERT W. KEETON *

The American Board of Ophthalmology
WILLIAM L. BENEDICT — EDWIN P. DUNPHY *

The American Board of Otolaryngology
FREDERICK T. HILL — DEAN M. LIERLE *

The American Board of Obstetrics and Gynecology
HERBERT E. SCHMITZ — ROBERT L. FAULKNER *

The American Board of Dermatology and Syphilology
NELSON PAUL ANDERSON — ANTHONY C. CIPOLLARO *

The American Board of Pediatrics
LEE FORREST HILL — JOHN McK. MITCHELL *

The American Board of Psychiatry and Neurology
BERNARD J. ALPERS — FRANCIS GERTY

The American Board of Radiology
H. DABNEY KERR — B. R. KIRKLIN *

The American Board of Orthopedic Surgery
CLARENCE H. HEYMAN — HAROLD A. SOFIELD *

The American Board of Urology
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The American Board of Internal Medicine
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The American Board of Preventive Medicine
WILLIAM P. SHEPARD — ERNEST L. STEBBINS *

The American Board of Proctology
WALTER A. FANSLER — LOUIS A. BUIE *

Officers and Committees—1954

ROBERT A. MOORE, American Board of Pathology, President.
WALTER PALMER, American Board of Internal Medicine, Vice-President.
B. R. KIRKLIN, American Board of Radiology, Secretary-Treasurer

MEMBERS OF THE EXECUTIVE COMMITTEE
Term to expire in 1955: ROBIN C. BUERKI, American Hospital Association
Term to expire in 1956: ROBERT L. FAULKNER, American Board of Obstetrics and Gynecology

COMMITTEE ON STANDARDS AND EXAMINATIONS
HAROLD A. SOFIELD, American Board of Orthopedic Surgery, Chairman
LOUIS A. BUIE, American Board of Proctology
JOHN McK. MITCHELL, American Board of Pediatrics

COMMITTEE ON AUDIT AND FINANCE
FRANCIS GERTY, American Board of Psychiatry and Neurology, Chairman
WALTER L. PALMER, American Board of Internal Medicine

REPRESENTATIVES ON ADVISORY COUNCIL ON MEDICAL EDUCATION
ERNEST L. STEBBINS, American Board of Preventive Medicine
ANTHONY C. CIPOLLARO, American Board of Dermatology and Syphilology

* Corresponding member.

Examining and certifying boards in 19 specialties have been approved by the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Board for Medical Specialties on the basis of minimal standards governing accreditation of specialty boards as formulated by the Council.

The primary purposes of the boards are (1) to conduct investigations and examinations to determine the competence of voluntary candidates for certificates issued by the respective boards, (2) to grant and issue certificates of qualification to candidates successful in demonstrating their proficiency, (3) to stimulate the development of adequate training facilities, (4) to aid in evaluating residencies and fellowships under consideration by the Council on Medical Education and Hospitals of the American Medical Association, and (5) to advise physicians desiring certification as to the course of study and training to be pursued.

The boards are in no sense educational institutions, and the certificate of a board is not to be considered a degree. It does not confer on any person legal qualifications, privileges, or a license to practice medicine or a specialty. The boards do not purport in any way to interfere with or limit the professional activities of any licensed physician, nor do they desire to interfere with any practitioners of medicine in any of their regular or legitimate duties.

Two boards certify candidates in subspecialties. The American Board of Internal Medicine certifies in allergy, cardiovascular disease, gastroenterology, and pulmonary diseases. The American Board of Pediatrics certifies in allergy. Certification in the primary field is a requirement for certification in the subspecialties. The Board of Thoracic Surgery, which is organized as an affiliate board of the American Board of Surgery, requires certification in surgery as a prerequisite to certification in thoracic surgery.

Certificates in special divisions of their specialty are conferred by six boards. The American Board of Obstetrics and Gynecology will issue certificates in obstetrics or gynecology only. The American Board of Otolaryngology grants a limited certificate in endoscopy. The American Board of Pathology issues certificates in pathological anatomy, clinical pathology, a combination of these two fields, pathological anatomy and clinical microbiology, clinical microbiology and clinical chemistry, clinical bacteriology, neuropathology, and clinical microbiology. The American Board of Preventive Medicine issues certificates in public health and aviation medicine. The American Board of Psychiatry and Neurology issues separate certificates in psychiatry and in neurology, or a combined certificate for those qualified in both fields. This board also issues supplementary certificates in psychiatry and in neurology. The American Board of Radiology issues certificates in radiology, roentgenology, therapeutic radiology, therapeutic roentgenology, diagnostic roentgenology, radium therapy, radiological physics, x-ray and radium physics, and medical nuclear physics.

Each of the boards has published a booklet containing a list of its officers and a brief statement of its organization, purposes, and the qualifications that determine eligibility for certification. A summary of the current data pertaining to each board and the names of its officers are reproduced in the following pages.

There is included in this section a specific statement from each of the boards regarding allowances of credit for service in the armed forces during the present emergency. A résumé of medical education and national defense was published in the Education Number of THE JOURNAL.[1]

Table 1 contains a list of the approved specialty boards, the year of their activation, the number of certificates issued prior to July 1, 1953, and the total number of candidates certified to June 30, 1954. Figures are also given in these two categories showing the numbers certified in the subspecialties and finally the available figures pertaining to special certification by the boards in obstetrics and gynecology, otolaryngology, pathology, preventive medicine, psychiatry and neurology, and radiology.

On July 1, 1953, there were 52,486 physicians certified by the 19 boards. During the year July 1, 1953, to June 30, 1954, a total of 4,133 certificates were issued. Up to this latter date 56,619 physicians have been certified.

On July 1, 1953, a total of 1,308 certificates in subspecialties had been awarded. An additional 54 were awarded in the ensuing year, bringing the total number of certificates issued in the subspecialties to 1,362 on June 30, 1954. Prior to July 1, 1953, the six boards mentioned had issued 9,848 special certificates. During the year ending June 30, 1954, 1,021 special certificates were issued, bringing the total number awarded to that date to 10,869.

The number of specialists certified each year during the past 15 years by all boards and the cumulative totals are recorded in table 2. Up to June 30, 1954, a total of 56,619 certificates were issued. This does not represent the number of living specialists, but the total number of certificates issued.

The sixth edition of the "Directory of Medical Specialists," compiled by the Advisory Board for Medical Specialties, published in 1953 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

CREDIT FOR MILITARY SERVICE

At the suggestion of the Joint Committee on Medical Education in Time of National Emergency, the Advisory Board for Medical Specialties conducted a survey to determine the amount of credit for service in the armed forces during the present emergency that would be given toward specialty board certification. The inquiry addressed to the boards contained the following questions:

Will your specialty board give preference to those candidates wishing to be examined before going overseas or entering military service?

How much, if any, credit toward your training and/or experience requirements will your board allow candidates while in military service?

1. Medical Education in the United States and Canada, J. A. M. A. **156**: 137 (Sept. 11) 1954.

TABLE 1.—*Approved Examining Boards in Medical Specialties*

Key No.	Name of Board	Year of Activation	Total Certificates Awarded to July 1, 1953	Total Certificates Awarded to June 30, 1954
1.	American Board of Pediatrics	1933	4,529	4,964 ‡
2.	American Board of Psychiatry and Neurology	1934	4,646	4,931
3.	American Board of Orthopedic Surgery	1934	2,207	2,354
4.	American Board of Dermatology and Syphilology	1932	1,512	1,603
5.	American Board of Radiology	1934	4,341	4,649
6.	American Board of Urology	1935	1,809	1,921
7.	American Board of Obstetrics and Gynecology	1930	3,908	4,291
8.	American Board of Internal Medicine	1936	8,404	9,062
9.	American Board of Pathology	1936	2,494	2,727
10.	American Board of Ophthalmology	1917	3,880	4,051
11.	American Board of Otolaryngology	1924	4,964	5,073
12.	American Board of Surgery	1937	6,158	6,817
13.	American Board of Anesthesiology	1937	1,023	1,185
14.	American Board of Plastic Surgery	1937	275	313
15.	American Board of Neurological Surgery	1940	488	553
16.	American Board of Physical Medicine and Rehabilitation	1947	239	240
17.	American Board of Preventive Medicine	1948	1,068	1,255
18.	American Board of Proctology	1949	144	165
19.	Board of Thoracic Surgery (An Affiliate of the American Board of Surgery)	1948	397 *	465 *
	Totals	....	52,486	56,619
	Certification in Subspecialties			
	American Board of Internal Medicine			
	Allergy		144	144
	Cardiovascular Disease		509	522
	Gastroenterology		298	328
	Pulmonary Diseases		218	222
	Totals		1,169	1,216
	American Board of Pediatrics			
	Allergy		58	65
	American Board of Surgery			
	Proctology		81 †	81 †
	Totals		1,308	1,362
	Special Certification			
	American Board of Obstetrics and Gynecology			
	Obstetrics		9	17
	Gynecology		6	10
	American Board of Otolaryngology			
	Endoscopy		4	.....
	American Board of Pathology			
	Pathologic Anatomy		516	665
	Clinical Pathology		211	262
	Pathologic Anatomy and Clinical Pathology		103	133
	Pathologic Anatomy and Clinical Microbiology		1	1
	Clinical Microbiology and Clinical Chemistry		3	3
	Clinical Bacteriology		2	2
	Neuropathology		5	7
	Clinical Microbiology		1	2
	Totals		861	1,075
	American Board of Preventive Medicine			
	Public Health		57	53
	Aviation Medicine		.....	134
	Totals		57	187
	American Board of Psychiatry and Neurology			
	Psychiatry		3,402	3,660
	Neurology		298	316
	Psychiatry and Neurology		946	955
	Totals		4,646	4,931
	American Board of Radiology			
	Radiology		2,758	3,017
	Roentgenology		892	915
	Diagnostic Roentgenology		477	496
	Therapeutic Radiology		151	152
	Therapeutic Roentgenology		5	5
	Radium Therapy		5	7
	Radiological Physics		34	38
	X-Ray and Radium Physics		15	17
	Medical Nuclear Physics		4	3
	Totals		4,341	4,649
	Totals		9,848	10,869

* Included in totals for American Board of Surgery.
† Independent board established in 1949.
‡ One special certificate issued to foreign candidate.

In reply to the first question all boards answered in the affirmative. The specialty boards have not lowered their requirements because of the military emergency, but all boards have indicated they will grant some credit for military service. The specialty boards have indicated such allowances as follows:

Anesthesiology.—No formal training credit is granted for military service unless the physician is assigned to a service hospital with an approved residency training program. Practice time will, however, be granted for military service if the physician is assigned to the anesthesia service.

Dermatology and Syphilology.—Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit toward experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision. Full-time dematological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist and provided a significant portion of approved training was completed before the service concerned. The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

TABLE 2.—*Annual Specialty Board Certification, 1940-1954*

Year (Ended March)	Number of Board in Existence	Number Certified	Cumulated Totals
1940	14	.....	15,853
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,552	44,346
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486
1954 (June 30)	19	4,133	56,619

* One board, the American Board of Proctology, did not certify any candidates during this period.

Internal Medicine.—Active duty as a commissioned officer in the armed forces of the United States from June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year during this interval may only be applied as practice credit on certification by former chiefs of service that assignments of candidates were in the field of internal medicine on a full-time basis in the care of clinical patients, largely on

their own responsibility. Active duty in the armed forces as a commissioned officer after July 1, 1954, may not be applied as residency credit unless the candidate has served officially as a resident in a hospital approved for residency training by the Council on Medical Education in internal medicine or in the medical subspecialties recognized by this board. Active duty in the armed forces as a commissioned officer after July 1, 1954, may be applied as practice credit for one year or more on certification by present or former chiefs of service that assignments were in the field of internal medicine on a full-time basis, in the care of clinical patients largely on one's own responsibility. The requirements governing residency credit and practice credit for active duty in the armed forces from Dec. 8, 1941, to Jan. 1, 1947, will remain the same as those governing credit from June 1, 1950, to July 1, 1954, as outlined above.

Neurological Surgery.—The board makes no specific statement regarding military service. This matter is taken up individually with each applicant.

Obstetrics and Gynecology.—Credit will be given for time spent in an obstetric-gynecological service in an Army or a Navy hospital under supervision on the same basis as a preceptorship, if these departments are supervised by diplomates of the board or recognized obstetricians-gynecologists. Full residency credit may be obtained if such hospital is approved for residency training. The board will review and give consideration to each individual case. Special request must be made for such credits.

Ophthalmology.—No stated credit. Each case is decided according to the time the candidate has spent assigned to a military hospital in ophthalmology and on other factors.

Orthopedic Surgery.—Up to one year of residency credit is given. Each case is determined on its own merits.

Otolaryngology.—Credit is given, but each case is determined on its own merits.

Pathology.—Allows liberal credit toward training when assigned to department of pathology, but candidates must first have had a minimum of one year residency in an approved civilian department of pathology.

Pediatrics.—One year of credit, regardless of assignment, toward two year practice requirement.

Physical Medicine and Rehabilitation.—Maximum of one year credit in related field; full credit if in the specialty.

Plastic Surgery.—Credit given on individual basis, considered on candidate's merits.

Preventive Medicine.—Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

Proctology.—One year toward completion in fulfillment of the general surgical residency.

Psychiatry and Neurology.—For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

Radiology.—Maximum of one year's credit if assigned to full-time radiological duties.

Surgery.—If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in nonapproved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

Thoracic Surgery.—Credit for military service will be decided on an individual basis.

Urology.—No credit for training but credit for one year of practice requirement if training was complete when entering service.

Medical Officer's Professional Training Record.—The Surgeons General of the armed services have distributed a booklet prepared with the assistance of the Council and the Advisory Board for Medical Specialties which is designed to help prospective candidates for certification to maintain an accurate account of work done in the military service. This record will constitute part of the credentials to be submitted to the board on application for certification. The booklet has been printed by the Office of the Secretary of Defense and is distributed by the offices of the Surgeons General to the personnel of their departments. It is highly important that prospective applicants obtain a copy of the "Medical Officer's Professional Training Record" and that they submit their credentials for evaluation by the respective specialty board.

AMERICAN BOARD OF ANESTHESIOLOGY

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CERTIFICATION

1. *Method of Making Application.*—Application for certification may be made after a physician has completed one year of approved training. Application must be made to the secretary on a form prescribed by the board, procured only on written request of the applicant, and must be filed at least six months prior to the date of examination.

The secretary cannot make any eligibility rulings. These are made only by the entire board on recommendation of the appropriate committees after reviewing the candidate's formal application.

2. *Requirements.*

A. Each applicant before he shall become eligible for certification in anesthesiology, must:

1. Have graduated from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association and have completed an internship of not less than one year in a hospital approved by the same Council, or its equivalent.*

2. Establish in a manner satisfactory to the board that:

(*a*) He is a physician duly licensed by law to practice medicine.

(*b*) He is of high ethical and professional standing.

(*c*) He has received adequate special training in anesthesiology.

3. Submit proof to the board that he has limited his practice to anesthesiology as a specialty for five calendar years of which at least two have been in formal clinical training approved by the board and that he intends to continue to limit his practice to anesthesiology.

4. Prove to the satisfaction of the board by such written, survey, oral and practical examinations as the board may prescribe that he is qualified to practice anesthesiology.

5. Personally prepare such case history abstracts of personally conducted procedures pertaining to anesthesiology as the board may specify.

B. Each applicant shall be classified for the purpose of examination and shall be examined in such a manner and under such rules as the board may prescribe. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

*NOTE: The American Board of Anesthesiology, after due consideration, has adopted the following policies concerning class B and foreign medical school graduates:

1. Graduates of class B medical schools are not eligible to take the board examinations.

2. Graduates of foreign medical schools not approved by the American Medical Association before admission to our examinations must:

(*a*) Pass the national board examination.

(*b*) Be fully licensed to practice medicine in the state in which they are practicing.

3. Graduates of medical schools outside of the United States approved by the American Medical Association before admission to our examinations must be fully licensed to practice medicine in the state in which they are practicing.

4. The expense of surveying and/or giving practical examinations outside of the United States will be borne by the candidate. The approximate amount of such funds to be paid by the candidate will be determined by the secretary and must be paid in United States currency to the American Board of Anesthesiology in advance.

It will also be agreed by the candidate and the board that any readjustment indicated will be done after determination of the actual expense of conducting the survey and/or practical examination. It further will be agreed by a notarized statement from the candidate that the payment of such amount will incur no obligation of any nature on the part of the American Board of Anesthesiology. It is also understood that the board reserves the right to determine whether surveys and/or practical examinations may be conducted in any country outside the United States of America.

3. *Examinations are conducted as follows:*

A. Written Examination: Eligible applicants may take this examination on completion of two years of clinical training approved by the board. Written examinations are conducted every year in about 16 locations throughout the United States on the third Friday in July. Written examinations are of the multiple choice type covering the following subjects: anatomy, chemistry and physics, pharmacology, pathology and physiology. A passing grade, as determined by the board, is required.

B. Survey Examination: Started in 1949 this examination is conducted by one or more diplomates of the board who visit the applicant in his own locality to observe him in the practice of anesthesiology. The examiner may interview other persons in the community to determine whether the candidate is of high ethical and professional standing. This examination is conducted upon completion of four years limited to anesthesiology (including two years of approved clinical training), and successful completion of the written examination. The board may require more than one survey examination.

C. Oral Examination: Upon completion of the survey examination and five years' limitation of practice to anesthesiology the candidate's qualifications are reviewed and he may be declared eligible to appear for the oral examination. However, at least six months must elapse between the written and oral examination. Examinations are conducted semiannually, in April and October. Examiners consist of directors of the board, plus diplomates who assist as associate examiners. Oral examinations cover all phases of anesthesiology, including the basic sciences and clinical applications.

D. Practical Examination: At the discretion of the board practical demonstrations may be required of the management of the candidate's clinical practice in his local surroundings. This may include inspection of clinical records, reports of departmental activities, library facilities, available apparatus and demonstrations of application of anesthetic agents, methods and all technics included in anesthesiology. The candidate will also be appraised as to whether he is of high ethical and moral standing in his community.

Applicants are entitled to three consecutive opportunities at yearly intervals to satisfactorily complete the written examination. This three year period begins on the date an applicant is first declared eligible for the written examination.

Applicants are entitled to no more than two survey examinations. Should the first survey report be declared unfavorable a candidate will not be permitted to appear for the oral examination until a favorable report is received. At least one year must elapse before a resurvey examination is given.

Oral examinations are given at six month intervals. An applicant is entitled to one oral examination each year for a three year period. In the event that a candidate fails an oral examination, at least 12 months must elapse before he may reappear for the oral examination. The three year period begins on the date an applicant is first declared eligible for the oral examination.

Failure to take an examination constitutes an opportunity just as much as failure to pass an examination. Applicants who fail to exercise the privilege of written or oral examination and/or who fail to pass any part of the written or oral examination within the three year period will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination.

A fee of $25 will be charged for each repeat in the written and oral examination. The board may, however, at its discretion deny a candidate the privilege of reexamination.

The board reserves the right to limit the number of candidates to be admitted to any examination.

REAPPLICATIONS

Applicants whose original applications were declared void through failure to take the examination will be required to file a new application under the current rules and regulations, pay a new application fee, and submit to both written and oral examination. Applicants whose original applications were declared void through failure to pass the examination must submit proof of an additional year of approved training before their reapplications will be considered. This reapplication will be considered under the current rules and regulations, and the applicant must pay a new application fee and submit to both written and oral examination.

FEE

The fee shall be $125. At least $50 shall be paid on filing the application, of which sum $35 shall be returned if the candidate is not accepted for examination. The remainder ($75) shall be paid before taking the examination.

The board is a nonprofit organization. The fees for examination and certification have been computed on a basis of cost of maintaining an administrative office and conducting examinations. The board reserves the right to increase the fee when necessary.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

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PURPOSES

The board was formed primarily to establish standards of competence for physicians who seek recognition as specialists in dermatology and syphilology. It sets minimum requirements of education and graduate training and takes a keen interest in the development of facilities to provide this training. To this end, the board appraises institutions and persons wishing to train specialists in the field and lends its approval to those offering adequate programs. It examines and certifies qualified applicants who voluntarily comply with its requirements and supplies lists of those certified to the American Medical Association, the Directory of Medical Specialists, and other appropriate organizations and publications. The board assumes the responsibility of setting the standards to be met, but upon the candidate rests the responsibility of acquiring the knowledge to fulfill these standards.

REQUIREMENTS FOR ELIGIBILITY FOR EXAMINATION

I. General Requirements

1. High ethical and professional standing.

2. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association. Graduates of schools not on the approved list may be eligible provided they first take and pass the examinations of the National Board of Medical Examiners.

3. Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council. During three years of World War II internships of nine months only were the rule and fulfilled this requirement. However, all internships completed on July 1, 1947, or thereafter must be of at least 12 months' duration.

4. A state license to practice medicine issued following examination, or by endorsement of the certificate of the National Board of Medical Examiners.

5. Citizenship in the United States or citizenship by birth in Canada or Cuba.

II. Special Requirements

The following minimum requirements have been established for admission to examination:

Formal training in dermatology and syphilology, after internship, of not less than three years (36 months). This training may be obtained as a resident, fellow, or graduate student in the institutions recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by the American Board of Dermatology and Syphilology. One month or less in each year may be taken as a vacation at the discretion of the chief of service. Vacations may not be postponed from one year to another; in other words, they are not cumulative. Candidates will not be eligible until three full years have elapsed since the beginning of training. This training shall include:

1. At least 12 months (less one month for vacation) full-time in an institution approved for three year training.

2. Graduate training in the basic medical sciences necessary for the proper understanding and treatment of the diseases involved in this specialty. Instruction in the following subjects as related to the skin is deemed advisable: embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and materia medica, and the physics of physical therapy. These subjects should be incorporated in the curricula of institutions approved for three years.

3. Carefully supervised clinical and laboratory work.

4. Annual examinations or other appraisal by the chief of service in the clinical, laboratory, and public health aspects of dermatology and syphilology.

METHODS OF TRAINING

The preferred method of training is a three year course in an institution approved for that period. However, apart from the required full-time year in such an institution, the remaining two years may be taken in institutions of lesser approval; or in part or in whole as a preceptorship (q.v.); or in half-time institutional training, the remainder being spent in practice. In the last-mentioned plan, only the institutional work is credited as training. Training must be completed within a span of five years, except where military service or other compelling circumstances shall intervene.

CREDIT FOR MILITARY SERVICE

Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the Executive Secretary, for possible credit towards experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision.

Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist, and provided a significant portion of approved training was completed before the service concerned.

The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

PRECEPTORSHIP TRAINING

Candidates may take up to two years of their training under the direction of a preceptor approved by the board. Not more than half of each training day may be spent in the office of the preceptor; during the other half day supervised training must be undertaken in an approved institution. The preceptor and the chief of service of the institution are jointly responsible for this training, which must conform to a schedule that the preceptor has filed with the board. Preceptorships may be taken

during any two of the years of training. A list of approved preceptors is available from the executive secretary. The status of a preceptee is not to be confused with that of an associate.

PRECEPTORS

A preceptor is one who takes a candidate into his office for part-time training. A dermatologist who wishes this responsible designation must be: (1) a diplomate of the board of at least five years' standing; (2) a recognized teacher of professorial rank on the dermatological staff of an institution approved for three years of training by the board; and (3) recommended as suitable by the chief of staff of that institution. He must be willing to submit regular reports on the student's training on forms supplied by the board.

Application is made to the board on forms obtainable from the executive secretary. On these the physical equipment and other facilities of the office are detailed, and the proposed plan of instruction is outlined, including the required institutional training. The application will then be appraised by the education committee, and acted upon at the next meeting of the board.

RESPONSIBILITY

It is the candidate's responsibility to make early contact with the board, to ascertain and observe its regulations, and to file the preliminary registration and the application for a certificate. Directors of training are responsible for submitting regular annual reports on their trainees to the board.

PRELIMINARY REGISTRATION

Every candidate must file a preliminary registration with the board prior to or at the beginning of training, whether or not plans are complete at the time. This establishes his identity and status as a candidate, and begins his permanent file. It enables the board to detect any deficiencies in basic qualifications or in the contemplated plan of training, in which case the candidate is immediately notified. The registration form is obtainable from the office of the board. No fee is involved at this time.

Each prospective candidate should also request and retain a copy of the "Booklet of Information," with whose contents he is expected to make himself familiar.

ESTIMATES OF STATUS

Many candidates write outlining their background to date and asking for an estimate of the further training needed. The board's requirements are published to provide this information, and any candidate should be able to judge his eligibility after studying them. Decisions as to additional training required can be made only by the Committee on Requirements upon submission of the application for examination giving details of the training undertaken. The $25 registration fee must accompany this application.

The board acts as a body, or through duly constituted committees. No individual officer or member is empowered to make decisions and personal interviews with them should not be requested.

CHANGE IN INSTITUTIONAL STATUS

When the term of approval of an institution changes, a candidate is given credit by the board for the training year already in progress, on the prior basis. Further work will be credited according to the new status.

APPLICATION FOR EXAMINATION

Application for examination may be filed before the end of training, and must be made before the closing date regularly published in the Examinations and Licensure column of THE JOURNAL of the American Medical Association. Dates of examinations, which may vary, are also published here. Applications should be filed early in order to obtain full advantage of the loan sets of histopathology slides available from the Armed Forces Institute of Pathology. Forms are obtainable from the executive secretary. No application will be considered without the accompanying registration fee of $25, which will not be refunded under any circumstances. When all supporting documents have been received the application is submitted to the Committee on Requirements, which appraises the qualifications of the candidate and decides as to his eligibility for examination. An examination fee of $75 is payable when the candidate is notified that his application is acceptable to the board. The total fee of $100 has been carefully computed and is used entirely for administrative purposes. Members of the board receive no compensation except for actual expenses connected with the examinations.

EXAMINATIONS

Examinations are designed to ascertain the breadth of the candidate's knowledge in the basic as well as the clinical aspects of dermatology and syphilology, to test his familiarity with the recent literature, and to gauge his general qualifications as a specialist in this branch of medicine. All applicants for certification must now take and pass a comprehensive written examination before they are eligible for the oral test, in whole or in part. The written examination is held simultaneously in various parts of the country on published dates. Applicants are then required to pass the oral clinical and laboratory examination which is conducted in a clinic or hospital. Cases will be seen and discussed with each candidate, and the examiners will seek to ascertain his knowlege of general dermatology and syphilology, as well as of various related subjects such as internal medicine, histopathology, mycology and microbiology, allergy, and the techniques and physics of radiology and other physical therapy.

Candidates whose applications have been accepted may take the next examination after the completion of training provided the quota is not already filled. Except in special circumstances, an applicant shall take the examination within a year following the filing of application. A candidate once accepted for an examination will henceforth remain eligible for only two succeeding examinations, unless some compelling circumstance, such as military service, shall intervene. Candidates who have signified their intention of taking the examination and who fail to appear, or who cancel their request after the final notice has gone out, shall forfeit the examination fee. The board's records are confidential throughout. Examination marks will not be divulged to the candidate or to anyone else. The findings of the board are subject to its discretion and are final. Applications are accepted only on this understanding.

REEXAMINATIONS

A candidate who fails or is conditioned will be eligible for a second examination without further formal application, but must give at least 60 days' notice of his wish. His acceptance will depend on the number of candidates already on the list. As the cost of examination is approximately the same whether in whole or in part, a reexamination fee of $50 will be charged. If a candidate fails to complete successfully all or part of the examination on two occasions, he must take at least six months' additional full-time training, or a year's half-time training, in an institution approved for three years, before being eligible for further examination. He must then file a new application and pay the initial examination fee of $75. If a candidate who has failed or been conditioned does not appear for reexamination before the expiration of three years, he must make a new application and pay an additional fee of $75 before he can be reexamined.

CERTIFICATES

A certificate granted by this board does not of itself confer or purport to confer any degree or legal qualifications, privileges, or license to practice dermatology or syphilology. The board does not intend to limit or interfere with the professional activity of any duly licensed physician. The granting of its certificate indicates that the holder has had adequate training in dermatology and syphilology and has voluntarily fulfilled the requirements of the board.

A certificate will not be issued until the successful candidate has completed at least five years of dermatological training and experience. Certificates will be issued only to members of the American Medical Association, or to members of parallel societies recognized as having the same purpose. A candidate does not become a diplomate until this requirement has been fulfilled. Certificates will be issued only to physicians who practice in the United States and its possessions, in Canada, or in Cuba. A diplomate is required to confine his practice to dermatology and syphilology except for such emergency programs as

have been approved in principle by the American Medical Association. The names of all diplomates are supplied promptly to the Directory of Medical Specialists, and to other appropriate organizations and publications.

ADVERTISING

It is not considered good form for a diplomate to advertise to the lay public the board's recognition of his training and ability. He should not use commercial methods and avenues. It is proper to include a statement or phrase such as "Diplomate of the American Board of Dermatology and Syphilology" in announcement cards when opening an office, or after the author's name in a medical publication when the association with a hospital, medical school, or medical society is also mentioned. If the diplomate is in doubt, it would be well to consult the board before placing his good name in jeopardy.

PUBLICATIONS OF THE BOARD

1. Booklet of Information. Every candidate should request a copy, as he will be held responsible for knowing its contents.

2. Syllabus of Graduate Training. This is designed (*a*) to inform the candidate of the field to be covered in his preparation; (*b*) to aid medical schools and hospitals by outlining the scope of teaching deemed advisable.

3. Booklet of Opportunities for Prospective Graduate Students, containing details of the training programs in approved institutions. (Latest edition 1948) $1.

4. Booklet of Questions from the Written Examinations. $1.

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RESPONSIBILITIES OF THE BOARD

The major object of the board is to pass judgment on the competence of internists who desire certification—not to determine who shall or shall not practice internal medicine as a specialty.

The American Board of Internal Medicine is not concerned with any mechanism which gains special privileges or specific recognition for those physicians who have been certified in internal medicine. It has never been the intent of the board to define requirements for membership on the staffs of hospitals.

The board endorses completely the stand of the American Board of Surgery, which "specifically disclaims interest in or recognition of differential emoluments that may be based on certification."

REQUIREMENTS FOR ADMISSION TO EXAMINATION AND CERTIFICATION

Each applicant for certification by this board must satisfy the qualifications listed below: (I) General Qualifications A, B, C, D, (II) Professional Qualifications A, B, C, D. For exceptions to the requirements C and D under Professional Qualification see paragraph G.

I. GENERAL QUALIFICATIONS

A. All candidates must be citizens of the United States or Canada.

B. All candidates must present evidence of satisfactory moral and ethical standing in the medical profession.

C. All candidates must be active members in good standing in their county and state medical societies in their state of legal residence. Under unusual and exceptional circumstances the board reserves the privilege of modifying this requirement. (This ruling shall not apply to commissioned officers of the United States regular Army, or Air Force, or Navy, or United States Public Health Service or to full-time staff members [physicians] of the Veterans Administration who are otherwise Service Fellows of the American Medical Association.)

D. Canadian citizens must be active members of the Canadian Medical Association before admission to examination.

II. PROFESSIONAL QUALIFICATIONS

A. Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association at the date of graduation.

B. Satisfactory completion of an approved internship of not less than twelve months.[1]

C. Residency or fellowship approved by the Council on Medical Education and Hospitals of the American Medical Association in internal medicine according to the following plan (Plan A) or one of the alternate plans described under paragraph D.

Plan A: A residency or fellowship in internal medicine for a period of not less than three years in a hospital or other institution approved by the Council on Medical Education and Hospitals of the American Medical Association for residency or fellowship in internal medicine. In such instances in which a resident's nominal status differs from that of the other hospital residents, he must furnish the board with certification by the chief of the medical service and the medical director of the hospital that he actually performed the full duties of a resident as a bona fide member of the residency program. In addition, two years of practice of clinical internal medicine will be required. The board will accept the following equivalents as satisfying one year only of the three years of residency or fellowship to which this paragraph refers. (Two years must be in the field of general internal medicine.)

1. If twelve months of a two year approved internship in a hospital approved for residency training in internal medicine is limited to the medical service and medical specialties, credit will be granted for a first year of assistant residency. The remaining two years of residency training must be in the general field of internal medicine. Certification by the chief of the medical service as to compliance with this requirement must accompany application.

1. During the period in which the 9-9-9 program was in effect an approved internship of nine months will satisfy the requirement of twelve months. A residency of nine months is considered as nine months only.

2. One year of approved residency in one of the medical specialties: allergy, cardiovascular disease, gastroenterology, hematology, pulmonary diseases, neurology, pediatrics, psychiatry, dermatology and syphilology.

3. One year of approved residency in pathology.

4. One year as a graduate student or as an instructor in an approved medical school on a full time basis in bacteriology, biochemistry, pathology, pharmacology, physiology or internal medicine.

5. An advanced degree in the medical sciences, provided the work has been done and degree obtained after graduation from medical school.

NOTE.—Graduate training credit for the time involved will be allowed candidates who take and satisfactorily complete postgraduate courses in internal medicine or the basic medical sciences provided by accredited medical schools on a full time basis. This ruling shall not apply to courses of less than three months' or more than twelve months' duration. A certificate of creditable performance, based in part, at least, on a formal examination on completion of the course, will be required.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in internal medicine or the subspecialties recognized by the board. This certification must be presented before application is filed.

D. Alternate Training Plans: The board firmly believes that the plan of intensive training prescribed above offers the best opportunity for a young physician to prepare himself to meet his responsibilities as a specialist in internal medicine. It is recognized, however, that capable persons may accomplish the same result in a longer period of time during which the training is less intensive. The board realizes that a number of medical graduates cannot follow the shorter and more desirable plan either because suitable residencies are not available or, in some instances, because of personal and economic reasons. Accordingly, the board has modified its previous regulations governing eligibility for admission to examination. In doing so the board has not modified its standards of examination. It has liberalized its eligibility requirements for admission to examination by accepting half time formal training and the practice of internal medicine under favorable circumstances as to professional and hospital contacts, in lieu of part of the full time requirements. It is hoped that by this means exceptional individuals may acquire a knowledge of medicine and experience in its application sufficient to qualify for examination.

The program previously described (Plan A), which consists of three years of formal training in an approved residency or its equivalent, following internship, and two additional years in the practice of internal medicine, is recommended by the board. Variations in this program are now subject to the following regulations.

1. In all instances, one year of approved internship and one year of approved residency will be required, except as indicated under Plan G. The graduate training credit of one year heretofore granted as a result of active duty as a commissioned officer in the armed forces during the period beginning Dec. 7, 1941, and ending Jan. 1, 1947, and during the Korean emergency with effective date June 1, 1950, may not be applied in satisfaction of the one year of approved residency referred to in Plan D, E, or F unless the candidate's assignment is considered by the board to have been equivalent to an approved residency.

2. Following one year of internship and two years of approved residency,[2] the remaining requirements may be satisfied by:

Plan B; that is, by two years of half time formal training followed by two years of practice limited to internal medicine, or by

Plan C; that is, by five years of practice limited to internal medicine.

2. For the second year of approved residency one of the equivalents described under C-Professional Qualifications may be substituted.

3. Half-time formal training is regarded as four hours per day for six days per week. It is required that half time formal training be verified by the head of the department. Verification must accompany application.

3. Following one year internship and one year of approved residency, the remaining requirements may be satisfied by:

Plan D[3]; that is, by four years of half time formal training followed by two years of practice limited to internal medicine; or by:

Plan E[3]; that is, by two years of half-time formal training followed by five years of practice limited to internal medicine, or by:

Plan F; that is, by eight years of practice limited to internal medicine.

4. In every instance at least two years of practice in internal medicine must be included, but in instances in which four years of practice are substituted for one year of residency, only one additional year of practice will be required; when more than eight years of practice are substituted for two years of residency an additional year of practice will not be required.

5. Physicians who have practiced internal medicine for twelve years following an approved internship may qualify for the examinations without further training (Plan G).

Half-time formal training under expanded plans B, D and E is defined as follows:

1. Half-time[3] as an instructor in clinical medicine in a recognized medical school in the United States or Canada.
2. Half-time[3] in a research fellowship sponsored by a recognized medical school in the United States or Canada.
3. Half-time[3] as a graduate student in an approved graduate medical school in the United States or Canada.

E. Practice Requirements: A period of not less than two years of practice to be completed by the time of first written examination in the general field of clinical internal medicine or in the more specialized branches of medicine. (See exceptions, Section D, paragraph 4.) This requirement may be satisfied by independent practice or in association with a recognized internist, following completion of requirements of formal training.

F. Graduates of Foreign Medical Schools: All candidates who are graduates of foreign medical schools must meet the following requirements as a minimum:

1. The physician must be a citizen of the United States.
2. The physician must furnish proof in the form, and to the extent deemed adequate by the board that he (or she) has graduated from a medical school after completing a four year full time course in medicine.
3. The physician must have a license to practice in one or more states of the United States, and have been in active practice confined to internal medicine within the state of legal residence for at least two years.
4. The physician must be an active member of the county and state medical societies in which he (or she) has established legal residence.
5. Graduates of foreign medical schools prior to 1930 may qualify under the alternate plans of the board the same as graduates of approved medical schools in the United States.
6. Graduates of foreign schools in 1930 and thereafter must, in addition to all other requirements, satisfy the requirements of one year of approved internship, and three years of approved residency or fellowship in the United States, and at least two years of practice limited to the field of internal medicine in the United States. If, however, their school of graduation is "recognized" by the Council on Medical Education and Hospitals of the American Medical Association, graduates of foreign schools may qualify under the various plans of the board the same as graduates of approved medical schools in the United States.

G. Candidates Graduating Prior to 1937: The requirement of three years of graduate training will not apply to candidates graduating from approved medical schools in the United States and Canada in 1936 or previous thereto, provided such candi-

dates have limited their work to the field of internal medicine for at least two years and provided each candidate is recognized as an internist by his colleagues in his community.

H. "Preceptor Training": Preceptor-type training is not recognized in satisfaction of any part of the three year requirement of formal graduate training.

I. Credit for service in the armed forces may be applied as follows:

1. Active duty prior to Jan. 1, 1947, may be applied for not more than one year as residency or practice credit, regardless of assignment. Service beyond one year may only be applied as practice credit on certification of former chiefs of service that assignments were in the field of internal medicine on a full-time basis in the care of clinical patients, largely on one's own responsibility.
2. Active duty from Jan. 1, 1947, to June 1, 1950, may only be applied as practice on the certification of former chiefs of service as referred to in paragraph 1, unless the candidate served officially as a resident in a service approved for residency in internal medicine while there.
3. Active duty subsequent to June 1, 1950, may be applied for not more than one year of residency or practice credit, regardless of assignment. Service beyond one year may only be applied as practice credit on the certification of former chiefs of service as referred to in paragraph 1, unless the candidate served officially as a resident in a service approved for residency in internal medicine while there. Residency credit automatically granted for active service in armed forces is discontinued as of July 1, 1954.

J. Graduates of the Chicago Medical School prior to approval by the Council on Medical Education and Hospitals of the American Medical Association and graduates of the Middlesex School of Medicine who received their degree in medicine prior to Jan. 1, 1951, and who have fulfilled all of the requirements set forth in *Section 2,* (Requirements for Admission to Examination and Certification), and an approved residency or fellowship of three years' duration (Plan A) and two years of practice in internal medicine may apply, and at the discretion of the Executive Committee or of the board be admitted to examination.

PRINCIPLES OF TRAINING

The American Board of Internal Medicine is interested in the fact that the candidate has embarked on a career of study voluntarily and has thereby expressed the desire to excel and to participate personally in the world's progress in medicine.

Preparation must be based on years of continuous thoughtful study. Therefore, in suggesting a program for those who wish advice, the board hopes to assist the candidates to avoid inferior and superficial programs which may lead to failure and disappointment in later years.

The board believes that all internists should have a sound fundamental knowledge of anatomy, bacteriology, biochemistry, pathology, pharmacology and physiology. Such knowledge is essential to the continued progress of any internist. The board anticipates that adequate training will be obtained in the basic sciences as applied to internal medicine during a formal three year residency program.

The board wishes to emphasize that time and training are but a means to the end of acquiring a broad knowledge of internal medicine which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge rests with the candidate. The responsibility of maintaining the standards of knowledge required for certification rests with the board.

APPLICATION

Candidates for examination must make their application on a prescribed form, which may be obtained from the office of the Executive Secretary-Treasurer.

The application must contain a record of the candidate's premedical and medical training as well as of internships, residencies, graduate study, hospital or dispensary staff appointments, teaching positions, service in the armed forces, membership in medical societies, medical papers published and the names of four well-known internists to whom the board may write for professional and character reference.

The application must be accompanied by one recent, signed photograph of the candidate mounted on the application, and the registration and examination fee of $40 to cover the written examination, of which $25 will be refunded if the application is disapproved. Upon application for admission to the oral examination, an additional fee of $50 will be required. Upon notification of certification by the board, a further fee of $10 to cover cost of certification, will be required.

The requirements of graduate training and two years of practice in the field of internal medicine must be satisfied before a candidate is eligible to apply for admission.

METHOD OF EXAMINATION—WRITTEN AND ORAL

The examinations for certification by the board comprise two parts: Part I is written; Part II is clinical and is an oral examination. The written examination is held simultaneously in different sections of the United States and Canada. Effective Jan. 1, 1949, one written examination will be given each year. This examination will be held on the third Monday in October. This examination is divided into a morning and afternoon period for each of which three hours are allowed. The questions are of the multiple choice type, framed in such a manner as the board elects and designed to test the applicant's knowledge of applied physiology, anatomy, physiological chemistry, pathology, bacteriology and pharmacology as related to internal medicine, and his basic clinical acumen.

Candidates must pass the written examination before admission to the oral examination will be authorized. Oral examinations are held near the time and place of the annual meetings of the American Medical Association and the American College of Physicians and at such other times and places as are necessary. Announcements of all oral examinations will appear in the *Annals of Internal Medicine* and THE JOURNAL of the American Medical Association. Applications cannot be accepted until the schedule is announced in the publications referred to and cannot be accepted after the closing date as announced.

The oral examination will be conducted under the direct supervision of the board. It will be given by members of the Board of Internal Medicine with the assistance of such guest examiners as may be selected. Oral examinations are conducted at the bedside of each of two patients previously assigned to each candidate. Forty-five minutes will be allowed for the examination of each of the patients before the candidate is examined orally. Candidates will be expected to present in a concise, orderly fashion pertinent facts in the history and diagnosis. Demonstration of important physical findings will be requested by the examiner. During the oral examination questions will be asked concerning diagnostic and therapeutic procedures related to the problems under discussion and to any other aspects of internal medicine. Conciseness and clarity of statement as well as evidence of clinical maturity, will be searched for, in addition to factual knowledge. Furthermore, the candidate should be prepared to demonstrate his ability to interpret objective demonstrations of roentgenologic, pathological, hematological, electrocardiographic, and other abnormalities.

REEXAMINATION—WRITTEN AND ORAL

1. Restrictions on the number of written examinations for which a candidate may apply have been waived. The interval between all written examinations will be not less than one year; however, the executive committee of the board may, in its discretion, require a longer period, or may for reasons it considers adequate, deny admission to reexamination. A fee of $15 is required for each written reexamination. The fee is due upon application for reexamination.

2. Restrictions on the number of oral examinations for which a candidate may apply have been waived. The interval between all oral examinations will be not less than one year, however, the executive committee of the board may in its discretion require a longer period or may, for reasons it considers adequate, deny admission to reexaminations. A fee of $40 is required for each oral reexamination. The fee is due on application for reexamination.

3. This ruling does not make it mandatory for a candidate to repeat the examination within the specified time limit. Candidates may elect a longer interval in the case of both the written and oral examinations.

CANCELLATIONS

Effective July 1, 1949, any candidate who cancels his assignment for a written or an oral examination after Sept. 1 will be required to pay a special fee in the amount of $10 before a subsequent examination, unless his cancellation was due to a cause deemed adequate by the board to exempt him from such special fee. This provision becomes necessary because of the large number of cancellations after complete arrangements have been made, and the expense incident thereto.

CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the by-laws and shall be signed by the officers and members of the board and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and oral examinations and have been found qualified by the board to practice the specialty of internal medicine. Specialty certification will be designated on the certificate, for those so certified.

SUBSPECIALTY BOARDS

Allergy, cardiovascular disease, gastroenterology, and pulmonary diseases are recognized specialties.

Each subspecialty application is individually considered and acted on by the subspecialty board concerned. The candidate is not eligible for examination until his application has been approved by the subspecialty board concerned and confirmed by this board.

All candidates must pass the written and oral examinations in internal medicine before admission to examination in a specialty of medicine referred to. The specialty examinations are oral only and may be taken at a scheduled subspecialty examination subsequent to the candidate's certification in internal medicine. Announcement of the subspecialty examinations will appear in THE JOURNAL of the American Medical Association and the *Annals of Internal Medicine*.

Application forms will be forwarded on request to the office of the Executive Secretary-Treasurer and should be returned to his office when completed.

INFORMATION ON CERTIFICATION IN ALLERY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

1. Two years, full time, including training both in allergy and internal medicine in an approved allergy clinic and hospital; or

2. One year, full time, including training in allergy and internal medicine in an approved allergy clinic and hospital, and two additional years of attendance and participation at least two half days weekly at an approved allergy clinic; or

3. Five years of attendance and participation at least two half days weekly at an approved allergy clinic; or

4. Twelve years in the practice of allergy after fulfilling the professional qualifications for certification in internal medicine, with evidence of sustained scientific interest.

5. All candidates who desire consideration in allergy must be certified in internal medicine before applying for admission to examination in allergy.

The candidate should be prepared for oral and clinical examination in the anatomy, pathology, physiology, and biochemistry of reactions of hypersensitivity. This will include immunology, immunochemistry, atopy, allergy of infection, collagen disease, and experimental hypersensitivity. He should be proficient in clinical diagnosis, laboratory procedures, and in the treatment of allergic diseases. He should be familiar with the physiology of respiration, especially as modified by bronchial asthma and pulmonary emphysema and with the pharmacology of drugs used.

NOTE.—Fellowship or research assignments not approved by the Council on Medical Education and Hospitals will require certification by the chief of service that such assignment was equivalent in graduate training opportunities and patient responsibilities to that of an approved residency in allergy recognized by the board. This certification must be presented before the application is filed.

RECOMMENDATIONS OF THE SUBSPECIALTY BOARD ON CARDIOVASCULAR DISEASE CONCERNING QUALIFICATIONS OF CANDIDATES FOR CERTIFICATION IN THIS SUBSPECIALTY

The applicant should be of good character and excellent standing in his community, as attested by letters from sponsors of known integrity.

The applicant should have reached a state of maturity, compatible with the acquisition of sufficient factual knowledge and experience to form a basis for sound judgment. The board believes that only exceptional persons are sufficiently mature for this subspecialty before the age of thirty-five years or less than ten years after graduation from medical school.

The board will make exception to this general rule of admission to examination, under unusual circumstances, largely to avoid injustice to the younger men of outstanding ability.

The candidate must have given clear evidence of his deep and constant interest in cardiovascular disease over a period of years. The board is particularly interested in recommending for examination those applicants whose records indicate that their interest in cardiovascular disease will probably be sustained throughout life, and that their knowledge of the subject will constantly grow. Achievements in the field of research are regarded as evidence of such interest, but publication of articles or prolonged training in research work is not considered essential. Consideration will be given to the circumstances of each applicant's training and experience; those who have been in communities and institutions which offered excellent opportunities for contributions to the knowledge of cardiovascular disease will be expected to have made such contributions. Consideration will be given to the difference in experience of those whose opportunities for research have been more limited.

In most cases, it is deemed essential that the candidate, after thorough training in internal medicine, shall have received at least one full year of postgraduate education in cardiovascular disease, preferably under the guidance of a person known to be experienced and sound. Qualifications will be appraised by the Cardiovascular Board and admission of the applicant to the examination will be determined by a majority opinion of the board.

Every candidate admitted to the certifying examination in cardiovascular disease will be expected to possess specialized knowledge of the kind indicated below. This list is by no means complete; it is intended to indicate the nature, rather than the extent, of the knowledge every applicant should have. In terms of its scope it should be regarded as the minimum, not the maximum. Persons possessing special knowledge and training in peripheral vascular disease may be expected to have a higher standard required in the examination in that portion of the field than in the certain details of other branches of cardiology, and the converse may be similarly applied.

1. Full and accurate knowledge of the anatomy of the normal and diseased heart, including its relationships to the external chest and to the other mediastinal structures. A comprehensive anatomical knowledge of all important blood vessels including their aberrant locations.

2. A thorough knowledge of the normal and pathological physiology of the heart and peripheral circulation.

3. Detailed knowledge of the diagnostic signs which permit the recognition of all important diseases of the heart and blood vessels, such as arteriosclerosis, arteriosclerotic heart disease, syphilitic heart disease, rheumatic heart disease, constrictive pericarditis, auricular and ventricular septal defects, coronary thrombosis with myocardial infarction, thromboangitis obliterans, Raynaud's syndrome, coarctation of the aorta, aneurysm, patent ductus arteriosus, periarteritis nodosa and lymphedema.

4. Familiarity with the special methods used in the study of diseases of the heart and blood vessels. In the case of the heart, these include such technics as electrocardiography, roentgenography, catheterization and angiocardiography; in the case of vascular disease, such technics as the use of the oscillometer and thermocouple, arteriography, and venography, reflex vasodilatation, the cold pressor test, color changes with elevation, dependency, temperature, etc.

5. Accurate knowledge of the pathologic changes associated with the more important diseases of the heart and blood vessels, sufficient to enable the candidate correctly to evaluate the pathologic condition from gross specimens or microscopic sections.

6. Fairly extensive and detailed knowledge of the pharmacology relating to heart and blood vessels. This must include full knowledge of the important relationship of the autonomic nervous system both to the heart and to the peripheral vessels, and the effects of stimulation or paralysis of the various parts of the autonomic system by drugs or by surgical methods. The candidate should be intimately familiar with the use and effects of such important drugs as digitalis, quinidine, heparin, papaverine, epinephrine, dicumarol, penicillin, diuretics, sedatives, etc.

7. A sound understanding of the indications for conservative therapy, as well as for surgical procedures, in cardiac and peripheral vascular diseases (patency of the ductus arteriosus, arteriovenous anastomoses, constrictive pericarditis, scalenus, anticus syndrome, etc.).

In summary, it is the desire of the American Board of Internal Medicine and its Subspecialty Board in Cardiovascular Disease that physicians shall not be admitted to the certifying examinations unless they have exceptional qualifications as individuals and as experts in this subspecialty of medicine.

INFORMATION ON CERTIFICATION IN GASTROENTEROLOGY BY THE AMERICAN BOARD OF INTERNAL MEDICINE

A. Professional Standing

The candidate must have at least two letters from recognized internists or gastroenterologists, which must attest to the candidate's professional qualifications and ethical standing, whether he is specializing in gastroenterology and if not entirely, giving an opinion as to approximately how much of his work is devoted to it.

B. Education

1. The candidate must admit proof of adequately supervised training in the recognized gastroenterologic procedures, including gastric and hepatobiliary function tests, proctosigmoidoscopy and gastrointestinal roentgenology (film interpretation).

2. The candidate must present evidence of fulfilment of one of the following requirements:

(*a*) Formal graduate course in gastroenterology, full time for at least eight months in a recognized institution.

(*b*) Residency or fellowship for at least one year in gastroenterology under tutelage of a recognized specialist.

(*c*) In the absence of (*a*) and (*b*), attendance and active participation in a ward service or in a gastrointestinal clinic, recognized in standing, for at least five years.

3. If requirements (*a*) or (*b*) under the above heading have been met, only three years of (*c*) will be required.

C. Practice

At least 60 per cent of the candidate's work must have been devoted to gastroenterology for at least three years before application.

INFORMATION ON CERTIFICATION IN PULMONARY DISEASES BY THE AMERICAN BOARD OF INTERNAL MEDICINE

I. Candidates for certification in pulmonary diseases shall fulfil the requirements of the American Board of Internal Medicine as to:

A. General qualifications.

B. Professional education.

C. Special training.

II. In addition to the General Requirements of the American Board of Internal Medicine, candidates shall:

A. Have completed special training period in pulmonary diseases to include at least a year's work in a sanatorium or hospital for tuberculosis and at least another year in the practice of pulmonary diseases in such an institution or in association with an older man competent in this field.

B. Submit an application to the Advisory Board in this specialty, which must be approved by all of the members of this board.

C. Pass the written and oral examination of the American Board of Internal Medicine.

D. Pass the oral and practical examination in pulmonary diseases.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

FRANCIS C. GRANT, Chairman, Philadelphia.
HOWARD A. BROWN, San Francisco.
GEORGE BAKER, Rochester, Minn.
ELDRIDGE CAMPBELL, Albany, N. Y.
WILLIAM V. CONE, Montreal, Canada.
FRANC INGRAHAM, Boston.
EDGAR KAHN, Ann Arbor, Mich.
KENNETH G. MCKENZIE, Toronto, Canada.
A. EARL WALKER, Baltimore.
JAMES C. WHITE, Boston.
EDGAR FINCHER, Emory University, Georgia.
LEONARD T. FURLOW, Secretary-Treasurer, Washington University Medical School, St. Louis.

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the board of directors.

2. It shall be discretionary with the board to accept for examination candidates who have been in practice more than six years but whose formal training fails to meet the full requirements.

3. Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in neurological surgery in the United States of America or Canada may apply for certification by the American Board of Neurological Surgery.

4. A special certificate may be issued to foreign (not United States of America or Canadian citizens) candidates who have received their training in neurological surgery in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examinations of this board, without completion of the requirement of two years in the practice of neurological surgery. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board.

PRELIMINARY PROFESSIONAL STANDING

1. Graduation from a medical school which is acceptable to the American Board of Neurological Surgery.

2. Completion of a surgical internship of not less than one year in a hospital acceptable to the board, or its equivalent in the opinion of the board. (A one year rotating internship does not satisfy this requirement.)

SPECIAL TRAINING

A period of graduate study in a recognized graduate school of medicine of not less than three years beyond the year of general surgical training, or in an approved hospital or under a sponsorship acceptable to the American Board of Neurological Surgery for the training of neurological surgeons. The training in clinical neurological surgery must be progressive and not obtained during repeated short periods in a number of institutions. It is preferable that at least two years of this training be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year.

This period of special training shall be of such a character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology, and biochemistry is emphasized. Knowledge of these sciences as applied to practice of neurological surgery will be required in the examination. The board will not credit periods of study limited to these basic sciences of longer than six months in fulfillment of this requirement of three years of special training.

Training in diagnostic neurology should be obtained either in correlation with training in neurological surgery or independently. The candidate will be required to pass an examination in this subject.

An additional period of not less than two years in the practice of neurological surgery.

The above represents only the minimum requirements of training for the practice of neurological surgery in the opinion of the board.

APPLICATIONS

An application on the official application blank in such form as may be adopted from time to time by the Board of Directors, in order to be considered at any meeting, must be in the hands of the secretary-treasurer of the board not less than sixty days before the date of such meeting.

The secretary-treasurer of the board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary-treasurer may deem desirable, after which he shall forward the application to the Committee on Credentials. This committee shall consider the application and other information available and notify the secretary-treasurer its recommendation whether or not the applicant is acceptable. The certification of a candidate shall be approved by a majority of the members of the entire board at any meeting held for such certification.

PAYMENT OF FEES

The fee for certification, with or without examination, shall be $100.

The candidate for examination on filing his application shall accompany it with an application fee of $25. When notified by the secretary-treasurer that he is eligible for examination he shall send the examination fee of $75 to the secretary-treasurer at least two weeks before the date of the examination.

REEXAMINATION

A candidate who has failed in one examination is eligible for reexamination in the subject, or subjects, in which he failed, within three years, on payment of a reexamination fee of $25. A candidate who has failed in one examination and who does not apply for reexamination within three years or a person who has applied within that time but who has failed a second time will be considered a new applicant.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

WALTER T. DANNREUTHER, President, New York.
F. BAYARD CARTER, Vice-President, Durham, N. C.
ROBERT A. KIMBROUGH JR., Vice-President, Philadelphia.
WILLARD R. COOKE, Galveston, Texas.
DANIEL G. MORTON, Los Angeles.
JOHN L. PARKS, Washington, D. C.
HERBERT E. SCHMITZ, Chicago.
ROBERT L. FAULKNER, Secretary-Treasurer, 2105 Adelbert Road, Cleveland 6.
LAWRENCE M. RANDALL, Assistant Secretary, Rochester, Minn.

REQUIREMENTS

Each applicant before he may become eligible to receive such certificate of the board or other evidence of recognition:

1. Must have had conferred on him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

2. Must establish in a manner satisfactory to the Board of Directors that he is a physician duly licensed to practice medicine, and

(*a*) that he is of high ethical and professional standing.

(*b*) that he has received at least minimal training bilaterally, i. e., in both obstetrics and gynecology. Training in one branch only is no longer sufficient for qualification. The term "minimal training" as used here is at present defined as meaning at least one year of full time formal training, in the branch of either obstetrics or gynecology relegated to a minor role in a candidate's training program as related to his preference and plans for practice. The required total of formal training is three years.

(*c*) that physicians otherwise qualified, who were graduated before Jan. 1, 1939 and whose required training was in obstetrics or gynecology alone, and who have confined their practice to obstetrics or gynecology for at least five years immediately prior to application be accepted for examination as candidates for certification in either obstetrics or gynecology. In all other respects requirements for eligibility remain the same as for those physicians graduated since 1939. Bilateral training is required as published in the bulletin of the board. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch.

3. Must make application for investigation of his credentials and a survey of his character.

4. Must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so, except for possible military duties. Candidates will be accepted only if, on application or by the time of their examination, they have been in practice limited to the specialty for a minimal period of two years following completion of their specialty training. This change in requirements permits a qualified candidate to make his application in the second year of his post-training practice period. The sole exception to the two year limitation is practice for the Frontier Nursing Service, Inc., of Kentucky.

This board will not accept applicants for examination who are not full citizens of the United States or of Canada, though they may be residents of either country. Foreign born applicants must have been certified by either the National Board of Medical Examiners or licensed to practice medicine in the United States or Canada by a state or provincial board of licensure. Notarized statements, *not* original citizenship papers, must be furnished when the application is filed attesting to the fact of full citizenship in the United States or Canada, if the applicant is foreign born. Further, there will be required a probationary period of at least three years from the date of licensure in the practice of medicine in these countries before such a candidate may be admitted to examination.

Applicants who have been certified by one of the other American specialty examining boards will not be eligible for certification by this board until they have relinquished the certificate previously conferred. (In making application to this board for certification, applicants, for some time back, have agreed to revocation of their certification by this board if and when they apply for and receive certification by any other American board, except on special action to the contrary taken by the American Board of Obstetrics and Gynecology.)

The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology, except by special ruling when this is related to active military duty.

This board deprecates engagement in fields of practice other than that in which candidates profess to be specialists. The board does not exclude from examination, however, obstetricians-gynecologists who practice abdominal surgery and urology in the female because of the correlation of these activities. The sole

exception to this provision is that it is permissible for candidates of the American Board of Obstetrics and Gynecology to participate in emergency care plans operated under the auspices of district, county, or state medical societies.

Military service or any other similar patriotic service, such as work with Selective Service boards, etc., have not been construed as nonlimitation of practice in violation of the board regulations. Officers (Regular or Reserves) certified by this board and on duty with "Family Dependent Services" are expected to be permitted to limit their work to the specialty, as in civilian life, and not to be engaged regularly in general or other practice.

The minimal requirements for all candidates will be uniform as follows:

1. Completion of at least one year intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association. This need not be a general rotating internship, although this latter is preferred.

The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation.

2. A minimum of seven years of training and practice after the first intern year, to include at least three years of residency training in obstetrics-gynecology in approved institutions, or adequate preceptorship training. (See Section on Preceptorship Training.) Following completion of acceptable training two years of post-training practice limited to the specialty are required.

The Council on Medical Education and Hospitals of the American Medical Association listed for the first time in 1950 (*J. A. M. A.*, April 15, 1950, pages 1216, 1204-1211), 149 inspected and approved one year residencies in general surgery "as offering training in general surgery . . . in preparation for residencies in surgical specialties." Such residencies are recommended by this board as desirable additional preparation, particularly when they provide opportunities for training in abdominal surgery. (See Internship and Residency issues of THE JOURNAL for lists.) As noted above, such service may be included in the total minimal eight years required after graduation.

Post-training practice period may include full time medical school or other positions within the specialty, actual practice within the specialty as an assistant, associate, or independently.

Periods of residency in obstetrics-gynecology in excess of the required three years will not be accepted as a substitute for any part of the two required years of post-training practice except in the cases of men advancing from their residency training into and planning to remain in full time teaching positions in medical schools and their affiliated hospitals.

3. Basic science training should emphasize the relation of the basic sciences, anatomy, pathology, physiology, biochemistry and bacteriology, to the application of surgical principles which are fundamental in all branches of surgery. More especially, for this specialty there should be training in infertility, endocrinology, oncology, irradiation therapy, electrotherapy, psychosomatic medicine and other nonoperative methods of diagnosis and treatment. In addition, the candidate must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, and so on.

Studies in the basic sciences may be integrated with the clinical work or may be given separately.

SPECIAL CREDITS AND RULINGS

The board conformed with the general acceleration in programs in medical education in that it will accept a period of nine "accelerated" months as an academic year in satisfying the requirement for each of three years of residency training. Such allowances can be made only for services during the wartime period of the official "accelerated program" and are not made for services before 1943 or after the discontinuance of this acceleration in 1946.

No formal graduate courses are required. If taken, credit will be limited to six months. Fellowships will be evaluated individually for credits by the Credentials Committee.

An applicant serving under military orders in an Army or a Navy hospital in an obstetrical-gynecological service under supervision will be given the same credit as if he were working under a preceptor, if these departments are supervised by diplomates of this board or recognized obstetricians-gynecologists. He may obtain full residency credit if such hospital is officially approved and listed for residency training in this specialty. The Credentials Committee of the board will review and give consideration to each individual case. Special request must be made for such credits.

A blank log-book entitled "Medical Officers Professional Training Record" is obtainable from the offices of the Surgeons General. This Record should be carefully kept and attested while in military service.

APPLICATION AND FEES

Application must be made on a special blank which will be furnished by the secretary's office and must be forwarded with the other required credentials and the application fee to the secretary's office not later than Oct. 1, 1954.

Candidates currently applying for admission to the examinations for certification are required to submit with their application a plain typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application or the year prior to their request for reopening of their application, with the diagnosis, pathological diagnosis, nature of treatment, and end result.

Candidates who have not had a minimum of three years' formal residency type of special training should utilize Preceptorship or Supplemental Training forms, obtainable from the office of the board, to submit in addition to the regular application form.

The application fee is $25 and is not returnable.

The examination fee is $100 and is payable when the candidate is notified of acceptance for examination. This fee is not returnable after the candidate has been officially accepted by the Credentials Committee and notified to report for examination.

If the candidate fails the Part II examination on his original application, he may exercise the privilege of one reexamination (see Examinations, Part II) but he will be required to pay a fee of $25 for such reexamination on making request that his application be reopened for this purpose. This ruling is effective on applications originally made after June 1, 1949.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners and associate examiners serve as such without compensation other than actual expenses.

Many prospective candidates write the secretary's office outlining in their letters their training qualifications and asking informally if they are eligible, if this training has been sufficient and, if not, what is still lacking. Any candidate should be able to make a fair estimate of his eligibility after studying these requirements.

Individual officers and directors cannot and will not make any such estimates or rulings. These are made only by the Credentials Committee after reviewing such requests made on a special form provided for this purpose, and submitted to the secretary for an appraisal with the fee of $15 to cover clerical expenses involved. This form is designated the "Application for Appraisal of Incomplete Training."

Personal interviews cannot be granted by the secretary or other directors of the board unless requested by the board.

Appraisal of Incomplete Training forms should not be filed if Application for Certification has already been filed. This is unnecessary duplication.

All candidates must comply with the board regulations in effect for the year in which the examination is taken, regardless of when the original application was filed.

Applicants declared ineligible for admission to examination may request reopening of their applications within two years of the filing date without payment of an additional application fee. When a candidate requests that his application be reopened, he must supply the board with information to justify such further consideration. A request for the reopening of an application declared ineligible by reason of insufficient training, nonlimitation of practice or similar items may not be approved in less than two years, although application may be made as specified above to avoid payment of an additional fee. This approval time may be reduced under exceptional circumstances. The request must

have adequate supporting evidence of additional training and experience to warrant reconsideration. Preceptorship or Supplemental Training blanks should be used for such reports, and these will be supplied on request.

After two ineligiblity or postponement rulings on any candidate's application, an entirely new application must be submitted (with or without fee, according to current requirements) in order to bring data down to date. The essential feature of this should be evidence of additional training and experience.

Applicants declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application are required to file a new and current application and to pay a new application fee.

Candidates should offer as sponsors or references two diplomates of this board with whom they are presently in contact, rather than men under whom they served as residents only. It is required that sponsors be from the candidate's community and currently acquainted with the candidate and his ability in his practice of the specialty.

On notice of acceptance for admission to examination, examination fee is due and also case records which should be shipped by the candidate to the secretary's office as soon as possible and not later than the date of the Part I written examination.

The candidate should make immediate acknowledgment of his notice of acceptance, at which time he will notify the secretary's office approximately when to expect his case reports.

EXAMINATIONS

Part I examinations are scheduled annually for early in February. Grades cannot usually be mailed from the secretary's office until after April 1 following the examination. Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination, which will be sent out from the board's office under sealed cover.

Special arrangement will be made through senior officers for conducting the written portion of the Part I examination for men in military service. Such candidates are requested to keep the secretary's office informed at all times of changes in their mailing addresses.

All applicants accepted for examination will be required to obtain a passing grade in both the written examination and a review of case reports (Part I), before becoming eligible for the oral-clinical and pathology examinations (Part II). The passing grade for the written examination and case reports is 75 per cent. A candidate whose grade in either or both falls below 75 per cent is conditioned.

Reexamination for the removal of conditions in Part I may be taken after one year but within three years after the first failure, without payment of an additional fee.

Application for reexamination in Part I must be made by the candidate prior to Nov. 1 of any year.

Requests for reexamination in the written portion of Part I and requests for resubmission of case reports must be filed prior to Oct. 1, 1954.

Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held later in the year.

Requests for reexamination in Part II must be made prior to Feb. 1, 1955.

Candidates appearing for reexamination under a new application after two previous failures will not be required, if they have passed all or part of the Part I examinations on their first application, to repeat such examination items already successfully cleared.

PART I

Examination consists of:

1. A comprehensive written examination, conducted annually, including questions on both obstetrics and gynecology and related basic sciences. The written examination will be limited to a maximum period of three hours.

2. The filing, as early as possible, and not later than the date of the written examination, of 20 obstetrical and gynecological case reports, in condensed form. (See Sections on Case Reports.)

Results on case reports submitted for review prior to the written examination will be announced simultaneously with those of the latter; candidates who take the written examination but fail to submit case reports on or before the date of the written examination cannot be given the grade on the latter until their case reports have been received and graded.

PART II

The oral-clinical and pathology examinations given all candidates are conducted by the entire board and the associate examiners usually near the time and place of the annual meeting of one or more of the national societies represented on this board. Advance announcements of examination dates and place will be made in medical journals throughout the country. (Schedule for Chicago, May 12 to 20, 1955.)
Examination consists of:

1. Oral examination before two to four examiners.

An endeavor is made to adapt the details of the oral examination to each candidate's experience and practice. The examination is particularly directed to ascertain his familiarity with recent obstetrical and gynecological literature, the related basic sciences, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

2. Pathology examination.

The candidate is expected to identify and to discuss several obstetrical and gynecological pathologic specimens and sections.

Examiners report orally on each candidate to the assembled board, after which the results of their investigations are considered jointly by the entire board and associate examiners. After a general consideration of the details of the candidate's oral and pathology examinations, including a review of his capability and general adaptability, the candidate is passed or failed by the entire board of directors.

The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examination.

When a candidate fails in Part II of the examination, he is not required to repeat Part I but is required to repeat Part II only. One reexamination may be taken within three years of the original examination and first failure without formal reapplication papers. Request for reopening of the candidate's original application must be filed with a reexamination fee of $25 (See Application and Fees). Application for reexamination in Part II must be made by the candidate prior to Feb. 1 of any year. Data regarding additional training or experience and medical school or hospital appointments acquired in the interim must be cited in the letter and verified on a Supplemental Training Form obtained from the office of the secretary of the board.

The reexamination fee will be effective only on original applications filed subsequent to the date of this announcement, namely, June 1, 1949.

The candidate may be allowed to reappear at the examination following the one failed by him. The board may, at its discretion, deny the candidate the privilege of reexamination. Requests for admission to reexamination must be accompanied by statements covering additional training, or opportunities for supervised clinical experience since the previous failure to justify such readmission.

Failure to exercise the privilege of reexamination within three years entails the filing of a new application with the usual application and examination fees.

After two failures in either Part I or Part II on the first application, the candidate may reapply with a new application and reapplication fee of $25 and reexamination fee of $100 and be readmitted to examinations once only. Exceptions to this ruling can be made only by action of the entire board of directors in annual session, usually to be based on evidence of additional training and experience sufficient to warrant such action.

CASE REPORTS

Case reports are to be sent by the candidate to the secretary as soon as possible after receiving notification of eligibility, and not later than the date of the Part I written examination.

In the case of candidates applying for unilateral certification, case reports must pertain to the branch for which application is made.

Twenty important obstetrical and gynecological case reports, in condensed form, are required. Five cases may concern major illnesses, not necessarily operative. These reports must include a variety of material rather than a number of reports of one type. Case reports from one residency's service shall not be more than five in number.

Men holding full time medical school faculty appointments may submit half their case records from this full time, nonprivate practice, but post-training service. (See Requirements.)

The candidate should prepare and maintain in his possession a carbon copy of his case records in case of possible loss in shipping.

These reports are not to be copies verbatim from hospital records, but should be in condensed form.

Evidence of adequate follow-up examination pertinent to each individual case must be submitted.

The candidate should submit *separate verified index lists, in duplicate* for each individual hospital at which operations were performed. All of these must be formally signed by the responsible hospital official (preferably the hospital superintendent), attesting in each instance that the candidate was the operator.

In the upper left-hand corner of each index sheet there should appear:

Candidate's Name; and Name and Address of Hospital.

The data for each patient should be tabulated horizontally, reading thus:

1. Sequence number of case report (1 to 20).
2. Whether patient was from the candidate's residency service or his own private or ward practice, as follows: "Res. Serv." or "Own Practice." *All records failing to have this information will not be considered acceptable.*
3. Patient's name or identifying initials, age, parity.
4. Date of patient's admission and hospital admission number.
5. Date of patient's operation.
6. Date of patient's discharge.
7. Dates of follow-up examinations.

At the foot of each index sheet should be placed the attested statement of the hospital official, referred to above. This statement should read as follows:

This is to certify that the above listed case reports have been verified by me from the records of this Hospital and these patients operated upon in this institution by Dr.————————; that the admission number and dates specified are correct. This is further to certify that the reports given the following sequence numbers (———— to ———— inclusive) were from the residency service of the aforementioned physicians and the reports given the following sequence numbers (——— to ——— inclusive) were from his own practice (ward or private) in this Hospital and that in all instances he was the chief operator.

.....Signature

.....Official Title

Date.....

Each case report should be typewritten on standard size paper, 8½ x 11 inches, and those reports then assembled in sequence. Covers should not be used for separate reports, as this increases their bulk unduly. Reports should be bound loosely together in a light outside cover not larger than 10 x 12 inches, so that they may be opened and held like a book. The following items should be observed:

I. Each case report should be headed by identifying information corresponding with that of the index lists, including sequence number, designation as a "Residency" or "Own Practice" case, and so on.

II. The report of the case should begin with:

1. Preoperative diagnosis.
2. Postoperative diagnosis (based on findings).

III. The report should be in condensed form, not reported in detail. Follow-up findings of not less than six (6) months are essential. Omissions of follow-up examinations must be explained and justified.

IV. Obstetrical reports which do not include essential pelvic measurements and note of methods used, will be considered incomplete.

V. Critical summary or analysis of each report with critical deductions derived from correctness or incorrectness of candidate's procedures and from final results must be a final part of each report. Lacking such summary, *reports will be considered incomplete and will not be graded.*

GRADUATE TRAINING RESIDENCIES

This board, through the Council on Medical Education and Hospitals of the American Medical Association, has approved institutions providing acceptable residencies in obstetrics and gynecology.

The American Board of Obstetrics and Gynecology has established the following requirements for its approval of a residency in a hospital department or service:

1. It is most desirable that the Chief of Service of the Department be certified by the board, in the interests of the proper teaching of the specialty of obstetrics and gynecology. In lieu of such certification the board will approve of persons of recognized high professional standing in the specialty. At least one additional senior member of the staff should be similarly qualified.

2. Exceptions to the foregoing, in respect to the certified status of Chiefs of Service and others as outlined above, can be made by assent of the Committee on Residency Training for adequate and justifiable reasons. As examples of the latter, the degree of F.A.C.S. in obstetrics-gynecology may be accepted in lieu of one of the two required certifications if the general reputation of the person concerned is known to the Committee as national or sectional in scope, or a professorial rank without certification might be acceptable.

3. In instances where the services of obstetrics-gynecology are not combined but are separate in any given hospital, the Chief of each such service seeking approval and at least one of his subordinates must be certified or otherwise qualified as outlined above.

If obstetrics and gynecology are not combined in one department, approval can be granted only if arrangements are made for some degree of rotation of residents between both services, provided both services are separately approved.

4. If gynecology is classified in the given hospital as a subdivision or subservice of general surgery, approval cannot be granted for residency training in gynecology. Exceptions have been made if the subdivision of gynecology is headed and staffed by a chief and at least one other certified by this board or otherwise qualified as specialists in obstetrics-gynecology, as specified above, thus insuring an acceptable educational program in obstetrics-gynecology.

5. Effective July 1, 1948, "temporary approvals pending survey" were discontinued. It is expected that all presently approved hospitals will soon be initially surveyed, if holding temporary approval, or resurveyed and redesignated if holding unconditional approval.

6. Departments holding official approvals for residency training are cautioned that their totals of residents appointed must be kept to the number specified in the A. M. A.—American Board approval notification. Dilution of training facilities by unauthorized appointment of residents in excess of these numbers may be cause for reinspection and changes in approval status of such hospitals and their special services.

7. For further details of requirements and qualifications for approval for residency training, hospital officials should refer to the latest special issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as they appear during each year, dealing with these subjects, *or should apply to the Council on Medical Education and Hospitals of the American Medical Association for bulletins entitled Essentials of Approved Residencies and Fellowships.*

8. Application for residency approval must be made in triplicate on special forms provided for this purpose. These forms may be obtained from the Secretary of the Council on Medical

Education and Hospitals of the American Medical Association. All statements amplifying an application should also be made in triplicate. The hospital should keep a duplicate of all papers.

9. The formal application, with all papers, for residency training approval should be submitted primarily to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois. Action is taken jointly by the Council and this Board after survey by the Council.

10. Approvals are granted according to adequacy of the training program and teaching facilities of various institutions on the following several bases: (a) one-year approval in obstetrics and gynecology (combined) or one-year approval in obstetrics and/or in gynecology (separate), correlated basic science instruction being an essential part of the first year; (b) two-year approval in obstetrics and gynecology (combined) or two-year approval in obstetrics and/or in gynecology (separate), provided there is opportunity in the latter instances for some degree of rotation between the two services as well as laboratory instruction in basic sciences; (c) three-year approval in obstetrics and gynecology (combined) or in obstetrics or in gynecology, provided there is opportunity for one to one and one-half years' service in the branch of the specialty opposite to that in which the candidate holds appointment, as well as laboratory instruction in the basic sciences of both branches.

Three (3) years' approval is available to institutions holding active medical school teaching affiliations. Other institutions may acquire three (3) years' approval if their educational programs and teaching facilities are adequate for such approval. Probably the most desirable type of approval, from the hospital's standpoint, is that of two (2) years in obstetrics and gynecology, because of the greater flexibility regarding appointments. These two (2) years may be the first two (2) following a trainee's internship or they may be the last two (2) of his formal training following an internship plus one (1) year of acceptable training in the specialty. A service with two-year approval may also, if it desires, appoint a man for only one (1) year, as for example, if he has already had two (2) years of approved training.

Many institutions with three-year approval appoint a group of men for the first year, promoting only part and releasing some of them at the end of this time. Other institutions are accredited for only one (1) year and both will from year to year provide partly trained men for the two-year institutions, which may thus complete a candidate's required training.

Some institutions may be granted one-year approval either because of limited facilities or, in certain instances, because of the preference of the institution, which may require that candidates for such positions must show evidence of having completed two (2) years of satisfactory training.

No stipulation has been made that an institution holding only one-year training approval must provide this as the first year of a candidate's formal training. It may be his second or even his third year, responsibilities being graded accordingly, but if it is his first year laboratory basic science instruction is an essential part.

On the other hand, candidates may be promoted from year to year in one place for their entire service of three (3) years if this institution is so approved and listed.

Exchange residencies within the specialty between approved institutions are acceptable and to be encouraged. Many authorities believe that training in more than one institution is broadening to the candidate. "Farming out" to unapproved institutions or services is not acceptable unless the work of such services is directly and carefully supervised by the Chiefs of the service in the approved hospital under which the man is actively appointed and working. This should be attested by such Chiefs.

Exchange residencies into other specialties cannot be permitted to subtract from the minimal required three (3) years of training divided between obstetrics-gynecology.

As noted elsewhere, two (2) years of post-training practice limited to the specialty is necessary before a candidate becomes eligible for certification.

This board has no objection to residency services being arranged by hospitals for periods longer than three (3) years, unless this dilutes the candidate's clinical training opportunities too much during the first three (3) years. However, the board does not accept a fourth year, or more, of residency training as a substitute for any part of the required two (2) years of post-training practice. The importance of post-training practice in the specialty is emphasized as an opportunity for maturing of the candidate and for colleague appraisal of a man's ability when working on his own responsibility in his chosen community.

Exception to this ruling may be made for men advancing from their training into and planning to remain in full-time teaching positions. These men then must complete at least two (2) years in such positions. Consequently the only institutions in which men may work as fourth and fifth-year residents and obtain credit for this time as "post-training practice" are those directly affiliated with approved schools of medicine as teaching hospitals for undergraduate instruction. These "full-time" men must hold faculty appointments, must have teaching duties with undergraduate students, must be given independent authority more than that of residents, and must make a declaration of intention to remain in full-time teaching work.

11. Lists of officially approved institutions for formal residency training appear regularly in certain issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Detailed information about any of these can be obtained from the Association.

12. Any physician formally obligating himself to serve a residency in a Council on Medical Education and Hospitals of the American Medical Association-American Board of Obstetrics and Gynecology approved hospital and thereby eliminating other possible candidates from the position, who breaks his contract without justifiable cause, either before beginning his service or during his period of service, except by mutual consent and agreement between the candidate and the hospital, may be barred from the examinations for certification at the discretion of the board.

13. It should be recalled by all concerned that credits for graduate training may be obtainable in certain instances for residency or assistantship service in hospitals not officially approved for residency training. Each such case must be individually considered, and credits will be largely dependent on the teaching qualifications of those in charge of the service, and the clinical facilities of the hospital in question.

PRECEPTORSHIP TRAINING

After July 1, 1955, the board will no longer accept training solely by preceptorship in fulfillment of educational requirements for admission to examination. To be eligible for preceptorship thereafter the candidate must have had a minimum of one year formal residency training in an institution approved by the board for residency training in obstetrics and/or gynecology.

After the above date candidates who apply for preceptorship training must notify the secretary of the board of such intent and give the name of the proposed preceptor. He must also request the preceptor immediately to notify the secretary of the board in writing, giving hospital connections, available clinical material, opportunity for basic study, and the plan of the proposed teaching program. As has long been true of residency training programs such as preceptorship, arrangements will be reviewed by the residency training committee of the board in advance for approval or disapproval. If the program is approved, the official preceptorship training form will be forwarded to the preceptor.

The preceptor must supervise closely the candidate's work and keep an informative record of the candidate's performance. The preceptor and the preceptee shall report in writing to the secretary of the board at the end of each six months of preceptorship, outlining the progress of the training program. This information will be placed in the candidate's application for admission to examination in order that it may be evaluated by the credentials committee.

As a general rule each year of preceptor training will receive a six months' credit toward the total of three years of training necessary for admission to examination. As is the

case with candidates whose training has been entirely by formal residency, each application will be evaluated finally by the credentials committee.

An acceptable preceptor preferably shall be one certified by the American Board of Obstetrics and Gynecology and must have been certified for a minimum of five years. Fellowship in the American College of Surgeons or long experience and established reputation as an obstetrician-gynecologist without either of the above qualifications may qualify the preceptor.

Preceptor and preceptee must work in a hospital approved by the Joint Commission on Accreditation of Hospitals.

The post-training practice requirements cannot be carried on concurrently with preceptorship training.

CERTIFICATION

Each certificate granted or issued does not itself confer or purport to confer on any person any degree or legal qualifications, privileges or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily appear before the board for such recognition and certification, according to its regulations and requirements.

The board does not subscribe to any hospital rule that certification is to be required for medical appointments especially in ranks lower than chief or senior staff of hospitals, or associate professorship in schools of medicine, for the obvious reason that such appointments constitute desirable specialist training.

Even though certification or its full equivalent may be considered a desirable requisite to appointment in key positions, as on the senior or chief staff, particularly of hospitals expecting to conduct approved services for training of residents, it was never intended by this board that certification should be required by any hospital as a prerequisite to appointment, especially in such lesser positions.

AMERICAN BOARD OF OPHTHALMOLOGY

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Address all communications to the American Board of Ophthalmology, Cape Cottage, Maine.

NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer on any person any degree or legal qualifications, privileges or license to practice ophthalmology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to elevate the standards of qualification for specialists in ophthalmology and to certify as specialists doctors of medicine who appear before the board for such recognition and certification, according to its requirements and regulations.

REQUIREMENTS

All candidates must comply with current board regulations regardless of time of filing application. The board, acting as a committee, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final. Many candidates write the secretary outlining their training and asking for an estimate of their status and the further training required. The board's requirements are published to provide this information, and any candidate should be able to estimate his eligibility after studying these requirements. Individual officers or members of the board cannot and will not make such estimates. They will be made only by the Committee on Requirements, upon submission of the application for examination and the payment of the registration fee which must accompany it. Personal interviews with officers and members of the board should not be requested at any time.

PREREQUISITES

1. High ethical and professional standing.

2. Full citizenship in the country where the candidate practices. (Limited to countries of North and South America, their possessions and territories and the Philippine Republic.)

3. A degree from a medical school of high standing, satisfactory to the board and approved by the Council on Medical Education and Hospitals of the American Medical Association. An applicant whose training has been received outside of the United States and Canada must present credentials satisfactory to the board and is required to have the certificate of the National Board of Medical Examiners if he has been in practice less than ten years.

4. Completion of an internship of not less than one year in a hospital approved by the same Council.

5. Completion, by the time of the written Qualifying Test, of not less than thirty-six months (a total of sixty months is required of candidates practicing both ophthalmology and otolaryngology) of combined study, training, and practice of ophthalmology in approved medical schools, hospitals, clinics, dispensaries, laboratories, preceptorships, and private practice.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application forms must be filled out completely and accurately. Letters of endorsement, together with any other required credentials, must be sent to the secretary's office before the deadline date.

2. Fee of $100 remitted with application.

3. A list of papers or books published.

4. Written qualifying test.

5. Practical examination.

6. Special review of ophthalmic surgery.

7. Membership in the American Medical Association, or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association.

FEES

For written test and original examination, $100 (as mentioned above).

Repeating Written Qualifying Test, $65.

Repeating Practical Examination, $65.

Single conditions, Written or Practical, $25.

Two or more conditions, $35.

Written qualifying test must be taken within three years of date of application. Thereafter new application and fee are required.

The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

SPECIAL TRAINING

This shall include:

1. Graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly: anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology, pharmacology, disorders of ocular motility and binocular vision, perimetry, and in the skilful adjustment and use of in-

struments such as the ophthalmoscope, retinoscope, slit lamp and microscope. Mere factual knowledge is not sufficient; the candidate must have had training in the application of these subjects and in their use in clinical ophthalmology, especially in refraction.

2. Active clinical experience in approved hospitals, clinics, dispensaries and private practice. Library and laboratory facilities should be utilized for intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the board.

These requirements may be met in various ways:

BASIC STUDIES

Anatomy
Embryology and developmental abnormalities
Biochemistry
Pathology
Bacteriology and immunology
Optics and physiologic optics
Ocular physiology
Medical Ophthalmology
Therapeutics and pharmacology
Neuro-ophthalmology

These may be covered by:

A. *Graduate Study.*—By a curricular course in the basic sciences related to ophthalmology in an approved graduate medical school.

B. *Postgraduate Study.*—By courses in individual basic sciences related to ophthalmology as given at various approved institutions. The Home Study Course of the American Academy of Ophthalmology and Otolaryngology is recommended.

C. *Residency.*—By advanced study of these subjects during a residency and by correlation of the principles involved with clinical problems.

D. *Research, Fundamental and Clinical.*—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic sciences into direct relation with the concrete clinical problem.

CLINICAL EXPERIENCE

A. By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the entire field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff and the method of presentation as well as the subject matter critically considered.

B. By residencies in hospitals where regular instruction by lectures and quizzes and seminars is not available. The syllabus issued by the board will guide the resident in his selection of topics to be studied.

C. By fellowships in ophthalmology.

D. By preceptorship with a well trained and critical ophthalmologist.

E. After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F. Research under competent critical and sympathetic supervision will give first hand insight into (1) the methods whereby old knowledge was and new knowledge is acquired and (2) the pitfalls which accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate basic facts in the intelligent critical way which is expected of the specialist in practice.

G. The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

MILITARY SERVICE

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

WRITTEN QUALIFYING TEST

Before being accepted for examination, candidates are given a written test to ascertain their qualifications. The questions may cover any part of ophthalmology and are especially devoted to the basic studies as listed above. The written test will be given in several principal cities at the same time. Choice of cities is determined largely by the geographical distribution of candidates. Candidates found acceptable will be notified to appear for a subsequent practical and clinical examination in ophthalmology.

EXAMINATIONS

Examinations usually are held annually at or near the time and place of the meeting of the American Medical Association; also at other times and places at the discretion of the board, depending on the number of applications from any region.

The board reserves the right to limit the number of candidates to be admitted to any scheduled practical examination.

Candidates must be examined in all subjects listed in the sections titled Basic Studies and Practical and Clinical Examination.

PRACTICAL AND CLINICAL EXAMINATION

The subjects of the practical examination are as follows: (1) External Diseases, (2) Ophthalmoscopy, (3) Histopathology, (4) Refraction, (5) Motility, (6) Ophthalmic Surgery, and (7) Perimetry.

1. *External Diseases of the Eye and Adnexa.*—Various methods of examination, diagnoses and treatment.

2. *Ophthalmoscopy.*—Patients will be examined by the candidate and the findings described or drawn. A candidate is required to bring his own ophthalmoscope.

3. *Pathology.*—The candidate will demonstrate familiarity with general clinical pathology as well as the etiology, pathology, and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize normal and pathologic histology of the eye.

4. *Refraction.*—A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5. *Motility.*—The candidate will demonstrate on patients his familiarity with routine methods of examination and diagnosis.

6. *Ophthalmic Surgery.*—Examination of surgical patients and discussion on principles of ophthalmic surgery.

7. *Perimetry.*—The candidate will be given an opportunity to examine patients by use of the arc perimeter, the tangent screen and the stereocampimeter. He may also be required to interpret charted fields.

SPECIAL REVIEW OF SURGICAL CASES

The board now requires of all candidates a list of ophthalmic operations performed within two years prior to examination. This list is to be presented with application.

The operations should be listed in groups of each type of surgery. The numbers of operations in each group must be totalled and the total number of all operations shown. This list must contain the following data:

1. Date.

2. Condition or conditions for which operation was performed. Complications during hospitalization.

3. Name and character of operation.

4. Identification by hospital or clinic number, or the name of a consultant or conferee who was present at the time of operation.

Circumstances which prevent any candidate from fulfilling this requirement should be fully explained, with detailed statement of candidate's surgical experience.

CERTIFICATION

The decision of the board is final as to the candidate's passing, failure or partial failure. The final action of the board is based on the candidate's ethical and professional record, training and attainments, as well as on the results of his formal examinations.

Certified ophthalmologists should refer to themselves as diplomates of the American Board of Ophthalmology. (There are only 12 members of the board and these are elected from the 3 component societies.)

REEXAMINATION

Candidates may be reexamined as often as they desire on satisfactory evidence of adequate additional preparation and payment of reexamination fee. When a candidate is conditioned in one or more subjects the Committee on Examinations shall decide on the merits of the case and the length of time that must elapse before reexamination in these subjects. A minimum of two years additional preparation is required of candidates who fail in all subjects. The board may, at its discretion, deny the candidate the privilege of reexamination.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY

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RULES AND PROCEDURES

1. General Eligibility Requirements

1. Satisfactory moral and ethical standing in the profession.

2. Graduation from a medical school of the United States or Canada, recognized at the time of graduation by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered satisfactory by the aforementioned Council.

3. Completion of an internship of not less than one year in a hospital approved at that time by the Council on Medical Education and Hospitals of the American Medical Association or, if trained in foreign countries, in institutions considered satisfactory by the American Board of Orthopaedic Surgery.

4. Starting in 1952 and continuing subsequently, applicants taking Part I examinations for the first time must have completed not less than one year of resident training in general surgery in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or present evidence of comparable training in general surgery considered satisfactory by the American Board of Orthopaedic Surgery. The minimum of one year of training in general surgery is in addition to the minimum of one year of internship.

5. Completion of formal requirements for Part I or Part II examinations. These formal requirements can be satisfied only by training in one or two categories:

(*a*) resident orthopedic training
(*b*) preceptorship training

Applicants may no longer be admitted to examinations, or be certified, on the basis of extensive specialized practice and/or teaching appointments and/or many short unapproved courses.

6. Restriction of practice to orthopedic surgery.

II. Requirements for Part I Examinations

1. Completion of and compliance with aforementioned general eligibility requirements.

2. Citizenship in the United States or Canada, or possession of citizenship papers showing intent to become a full citizen.

3. Satisfactory completion of a minimum of one year of approved training in orthopedic surgery under a program of resident orthopedic training, or completion of a minimum of five years of orthopedic training under a preceptorship program.

Starting in 1952 and continuing subsequently, in addition to the aforementioned requirements, applicants taking Part I examinations for the first time will be required to have satisfactorily completed a minimum of two years of approved training in orthopedic surgery instead of one year previously required. Applicants training on preceptorship programs will still be required to have completed a minimum of five years of orthopedic training.

4. Evidence of competence in training.

5. Approval for examination by the Committee on Eligibility of The American Board of Orthopaedic Surgery.

III. Requirements for Part II Examinations

1. Successful completion of Part I examinations.

2. Full citizenship in the United States or Canada.

3. License to practice in the United States or Canada.

4. Membership in the American or Canadian Medical Association.

5. Satisfactory completion of a minimum of three years of approved resident training in orthopedic surgery, plus a minimum of two subsequent years of practice period for applicants trained under resident orthopedic training programs.

6. Satisfactory completion of a minimum of five years of practice period for applicants trained under preceptorship programs.

7. Evidence of competence in practice.

8. Approval for examination by the Committee on Eligibility of the American Board of Orthopaedic Surgery.

IV. Application and Examination Fee Schedule

1. Application for Part I, fee $15, not returnable.

2. Examination, Part I, fee $35, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

3. Application for Part II, fee $15, not returnable.

4. Examination, Part II, fee $50, payable only if approved for examination. Approved candidates failing to appear for scheduled examinations forfeit fees.

5. Reexamination, Part I, fee $35; for Part II, fee $50. No application fee is required for reexamination.

V. Applications

1. Applications for Part I examinations must be received in the office of the secretary of the board before Nov. 30 of the year preceding the examinations.

2. Applications for Part II examinations must be received in the office of the secretary of the board before Aug. 15 of the year preceding the examinations.

3. Notices of acceptance for admission to the Part I examinations are mailed to eligible candidates during the month of February in the year of the examinations.

4. Notices of acceptance for admission to Part II examinations are mailed to eligible candidates during the month of November in the year preceding the examinations.

5. Questions of eligibility for examinations are decided by the Committee on Eligibility of the board. This committee meets twice yearly. The secretary is not empowered to rule on questions of eligibility.

VI. Examinations

1. Part I examinations are held once yearly, usually in April or May, in various centers in the United States.

2. Part II examinations are held once yearly, usually in one center, immediately preceding the meeting of The American Academy of Orthopaedic Surgeons.

VII. Certification

1. Applicants who successfully pass Part I examinations will receive no certificate but will be notified by letter by the secretary.

2. Applicants who successfully pass Part II examinations receive a Certificate of the Board, which states that they have been found qualified to practice the specialty of orthopedic surgery in those fields in which they have been trained and examined.

3. Candidates obtaining certification without training and examination in children's orthopedic surgery may subsequently add certification in children's orthopedic surgery by completing a minimum of one year of approved resident orthopedic training in children's orthopedic surgery and successfully passing examination in that field. A practice period of one year is required following completion of resident training, prior to examination for additional certification.

VIII. Approved Residencies

1. In the United States, resident training must be taken in institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association. All approved institutions are listed at frequent intervals in the Internship and Residency Number of The Journal. Lists may be obtained from the American Medical Association and are not obtainable from the board.

2. The integral parts of approved residencies are designated in lists by the following symbols: A—Adult Orthopedic Surgery; C—Children's Orthopedic Surgery; F—Fracture Surgery; and S—Basic Science training. Approved lengths of training in institutions is also designated.

3. Candidates electing an additional year of training in adult orthopedic surgery and fracture surgery in lieu of a year in children's orthopedic surgery may satisfy requirements by continuing their training beyond the designated approved length of time in institutions approved for adult orthopedic surgery or adult orthopedic surgery and fractures.

4. Credit for resident training is not retroactive. Candidates must receive resident training in institutions during periods that such institutions are on the approved list. If candidates are in training at institutions at the time that such institutions become approved, resident training credit may be granted from the start of the training period provided that the program is judged to have been satisfactory.

5. Candidates in resident training, or possessing signed contracts for future resident training in institutions which become disapproved, either in whole or part, receive resident training credit for the entire period during which their contracts are in force.

6. The term "fellow" is considered synonymous with "resident" when the position occupied and the work performed is equal in all functions. Fellowships in institutions having residents, in which training and responsibilities are not equal, are not credited as resident training.

7. Institutions approved for resident training in orthopedic surgery by the Council on Medical Education and Hospitals of the American Medical Association may, with prior acceptance by the American Board of Orthopaedic Surgery and notification to the Council, utilize the training facilities of institutions not individually approved for resident training by the aforementioned Council, provided that:

(*a*) The training supplements services in the same categories in which the institution responsible for training is approved by the Council.

(*b*) The resident spends at least half of the minimum required time in each category of training in institutions approved by the Council.

8. Foreign residencies must satisfy the American Board of Orthopaedic Surgery.

9. Application for approval of the training facilities of any institution must be made to the Council on Medical Education and Hospitals of the American Medical Association, and inspection of such facilities is made by representatives of the Council. Final approval is a joint function of the Council and the American Board of Orthopaedic Surgery.

IX. Requirements of resident Orthopedic Training

1. Institutions approved for full three year programs including all parts of the training requirements may integrate all parts so that they are given concurrently.

2. Institutions now approved for less than three years of orthopedic resident training should arrange with other approved institutions to provide complete three year programs for all residents. It is planned that such desirable complete programs, with their participating institutions, will be listed separately.

3. The minimum requirements of resident orthopedic training are as follows:

(*a*) One year of training in adult orthopedic surgery.

(*b*) Six months of training in the basic sciences.

(*c*) Six months of training in fracture surgery.

(*d*) One year of training in children's orthopedic surgery or, if elected, an additional year of training in adult orthopedic surgery and fracture training in place of training in children's orthopedic surgery.

4. Candidates who elect an additional year of training in adult orthopedic and fracture surgery instead of a year in children's orthopedic surgery may satisfy the requirements by taking the additional year of training in adult orthopedic surgery or six months of adult orthopedic surgery and six months of fracture surgery, but may not take the entire year of training in fracture surgery.

5. Training in adult and children's orthopedic surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of orthopedic problems.

6. Training in fracture surgery must include observation and first hand experience in diagnosis, treatment, operative and postoperative care of recent and old fractures.

7. Training in the basic sciences must instill a sound knowledge of anatomy, pathology, physiology, bacteriology, and biochemistry as these basic sciences apply to orthopedic surgery.

8. Candidates may complete the training requirements by training in several approved institutions provided that all the aforementioned minimum requirements are satisfied on approved services.

9. No training period of less than six consecutive months in one institution may be credited toward resident training requirements, except a few short courses on the board's approved list and recognized supplementary services of approved institutions.

10. Candidates in resident training may not engage in private practice.

11. Candidates in resident orthopedic training must receive their training in institutions and may not receive credit for time spent assisting in private office practice, which is considered as preceptorship training.

12. Candidates trained on accelerated programs during the war years are credited with one year of training for each nine months' residency on established accelerated programs.

X. Requirements of Preceptorship Training

1. The preceptor must possess certification by the American Board of Orthopaedic Surgery.

2. The practice of the preceptor must be extensive enough to give the candidate experience in all phases of orthopedic practice.

3. The preceptor must devote special periods of time each week, outside of the routine hours employed in hospitals and office practice, to assist the candidate with organized courses of study similar to those received during resident training.

4. If facilities and instruction in the related basic sciences are not available, the candidate must spend a minimum of six months as a student in an institution approved for basic science training in orthopedic surgery.

5. The candidate must train as a full time assistant to the preceptor and may not maintain a separate office or engage in individual practice.

6. The minimum training period in orthopedic surgery under the preceptorship program is five years, after which time the candidate may file application for Part I examinations.

7. The minimum practice period required for candidates trained under the preceptorship program is five years, after which time the candidate may file application for Part II examinations. This makes a minimum total of 10 years from the start of orthopedic training to eligibility for Part II examinations.

8. The practice period may be satisfied in individual private practice or in assistantship or partnership as desired by the candidate.

9. Candidates who combine preceptorship training with approved resident training receive credit for the preceptorship portion of their training only if it totals a minimum of two years. Two years of preceptorship training are credited as the equivalent of one year of resident training. The practice period requirement is likewise evaluated so that three years of practice are required if the candidate submits two years of preceptorship and two years of resident training, and four years of practice are required if four years of preceptorship and one year of resident training are submitted.

XI. Sequence of Examinations and Practice Requirements

1. No person may take Part II examinations until after successful completion of Part I examinations.

2. Successful completion of Part I examinations in no way obligates the board to declare a candidate eligible for Part II examinations.

3. Regardless of how extensive or prolonged a practice a candidate may have had prior to completing the training requirements, such time may not be credited toward practice requirements. All practice requirements must be satisfied subsequent to completion of training requirements.

4. Candidates may not be admitted to examinations on the basis of prolonged practice but must qualify on the basis of formal training in one of the categories previously detailed.

XII. Practice Requirements

1. Candidates must maintain high ethical and professional standards.

2. Candidates must strive to increase their scientific knowledge.

3. Candidates must limit their practice to orthopedic surgery.

4. Candidates who have had no approved training in children's orthopedic surgery must confine their practice to fracture and adult orthopedic surgery.

5. Candidates trained in resident orthopedic training are required to complete a minimum of two years of orthopedic practice subsequent to the completion of their formal training before becoming eligible for Part II examinations.

6. Candidates in private practice must spend a minimum of 14 months in one locality immediately prior to application in order that practice may be properly evaluated.

7. Candidates employed full time in institutions may satisfy practice requirements by serving a minimum of two years, but minimum requirements may not be satisfied by mixing full-time institutional work with preceding or subsequent time in private practice.

8. Candidates trained by preceptorship are required to complete a minimum of five years of orthopedic practice before becoming eligible for Part II examinations. The practice period may be independent of the preceptor.

XIII. Method of Examination

1. Part I examinations consist of a written examination and oral examinations. Material covered includes fundamental surgical principles, elementary fracture and orthopedic procedures, history-taking and physical examinations as well as those parts of anatomy, pathology, physiology, and biochemistry related to orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) physiology and biochemistry, (*d*) surgery and (*e*) fractures and orthopedic surgery.

2. Part II examinations consist of a written examination and oral examinations. Material covered includes advanced work in all phases of orthopedic surgery. The oral examinations consist of five parts: (*a*) anatomy, (*b*) pathology, (*c*) children's orthopedic surgery, (*d*) fractures and (*e*) adult orthopedic surgery.

3. Candidates who have not had approved training in children's orthopedic surgery will not be examined in that branch of orthopedic surgery.

4. Candidates are notified by letter as to whether they passed or failed in the examinations. No information regarding results is available until such letters are mailed.

5. Results of integral parts of examinations are not available to either candidates or diplomates of the board.

6. Candidates who have passed Part I examinations are required to take Part II examinations within a 10 year subsequent period. If there is a lapse of more than 10 years, candidates must repeat Part I examinations and must then become eligible by the requirements then in force.

XIV. Reexaminations

1. Applicants who fail to pass Part I or Part II examinations may be reexamined a second or third time in each Part, but must pay the prescribed examination fee each time of reexamination.

2. Applicants who fail to appear for second and, if necessary, third reexaminations within three years after first failure must submit new applications with the appropriate fees.

3. After three successive failures in Part I or Part II examinations, applicants must present evidence of additional orthopedic training satisfactory to the board before submitting new applications.

XV. Military Service

1. Medical officers who have elected service in the military forces as their life careers compete for certification on the same basis as do physicians in civilian practice.

2. Physicians who served for a minimum of one year in the military forces during the war years, between Jan. 1, 1941, and July 1, 1946, are granted a bonus of one year of practice credit, provided that the same time is not used for resident training credit.

3. Applicants who served in military hospitals whose service is judged by the board to have been equal to that of approved resident orthopedic training, and who were on such service for a minimum of one year between Jan. 1, 1941, and July 1, 1946, may be granted credit for one year of resident orthopedic training, provided that the same time is not used for practice credit. Applicants requesting such credit must submit completed "Record of Professional Assignments" booklets with their applications.

4. No applicant may be granted more than one year of resident training credit and one year of practice credit for military service during the war years.

5. After July 1, 1946, credit for orthopedic training must have been or must be obtained by assignment as residents in military hospitals on the approved list for resident orthopedic training, the same as in civilian life.

6. Medical officers assigned to civilian institutions on the approved list for resident orthopedic training receive the same credit as do civilian candidates.

7. Medical officers who have elected service in the military forces as their life careers must satisfy the practice requirements by military assignments in which their duties are limited to the practice of orthopedic surgery.

XVI. Records of Surgical Cases and Inspections

1. Records of a specified number of consecutive surgical cases may be requested by the board in order to evaluate properly the work of an applicant.

2. A representative of the board may visit a community in order to evaluate properly the work of an applicant.

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GENERAL REQUIREMENTS

The following general qualifications of candidates for examination are required by the board:

1. A candidate must have been a citizen of the United States or the Dominion of Canada for three years or more.

(*a*) A candidate must have been a graduate five years or more of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A candidate must be of known good moral character and be ethical in his professional relationships.

(*c*) A candidate trained in a foreign country must be able to give proof of medical and graduate training comparable to the requirements of the Board.

(*d*) A candidate from the United States or the Dominion of Canada must be a member of the American Medical Association or of the Canadian Medical Association respectively or other such medical societies of equal standing as are recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Candidates from foreign countries, who have received their training in otolaryngology in the United States are eligible for examination at the discretion of the board, providing they show proof that they are permanent residents and citizens of their respective foreign countries and provided they meet the general academic requirements of the board.

SPECIAL REQUIREMENTS

1. A candidate must have had a general internship, of at least one year, in a hospital approved by the Council on Medical Educations and Hospitals of the American Medical Association.

2. A candidate must be proficient in the applied basic sciences, fundamental to the intelligent practice of otolaryngology. These include anatomy of the ear, nose, and throat, neck, chest, esophagus and nervous system, gross pathology and histopathology, bacteriology, physiology, didactic otolaryngology and the general fundamentals of surgery. (This requirement may be fulfilled in a residency or fellowship service or in an approved organized postgraduate course.)

3. In addition to the general internship, the required clinical training in otolaryngology may have been acquired in any of the following ways:

(*a*) A three years' approved residency or fellowship in otolaryngology approved by the Council on Medical Education and Hospitals of the American Medical Association.

(*b*) A four years' approved residency or fellowship in otolaryngology and ophthalmology approved by the Council on Medical Education and Hospitals of the American Medical Association, provided one half of the training has been in otolaryngology.

(*c*) A two years' approved residency or fellowship in otolaryngology or a three years' approved combined residency or fellowship in otolaryngology and ophthalmology, provided two years have been in otolaryngology and have been preceded by at least one year's approved residency training in surgery or medicine, or by an additional year in an approved internship.*

4. In exceptional circumstances certain candidates who cannot meet all of the above requirements may be accepted for examination, on recommendation of the Credentials Committee, substantiated by action of the board.

5. At least one year must be spent in private, group or institutional practice of otolaryngology following the period of special training. This requirement may be waived in cases of candidates of foreign countries who are permanent residents and citizens of their respective countries and who are returning there for the practice of otolaryngology.†

6. A candidate may be qualified for examination, at the discretion of the American Board of Otolaryngology, if in addition to the General Requirements and Special Requirements, no. 1 and 2, he has limited his practice to otolaryngology for seven years in association with a hospital staff approved by the Council on Medical Education and Hospitals of the American Medical Association.

7. A physician who limits himself exclusively to the practice of peroral endoscopy may be granted limited certification in this field by the American Board of Otolaryngology irrespective of certification in any other specialty. Limited certification will be granted provided the candidate has spent not less than one year of training in a hospital approved for endoscopic teaching and has passed successfully examinations in the basic sciences as they pertain to this field, and didactic and clinical examinations covering diseases of the larynx, pharynx, neck, esophagus, stomach, tracheobronchial tree, lungs and mediastinum and cer-

* See Standards for Residencies in Otolaryngology published by the American Medical Association.

† When the requirement of an additional year referred to in 5 may impose handicaps as to rating in the military or Veterans Administration services, the candidate may be considered under 4 above.

tain aspects of cardiovascular disease as they pertain to preoral endoscopy. A limited certificate by the American Board of Otolaryngology will not be issued to physicians who have been certified in a specialty that employs peroral endoscopy in diagnosis and/or treatment because his major interest is in that specialty, not in endoscopy.

All candidates must comply with current board regulations, regardless of the time of filing application.

APPLICATION AND FEES

1. Application must be made in duplicate on special blanks procured from the secretary. The completed application blanks must be returned to the secretary, together with the other required credentials, at least 120 days in advance of the examination at which the candidate desires to appear.

2. The applications must be accompanied by two small photographs of the candidate, together with *verification* of the period of enrollment from the institutions where training in otolaryngology was obtained, and the names of two or more otolaryngologists, preferably diplomates of the board, from the vicinity of the candidate's place of residency, to be used as references.

3. The fee for the examination is $150. Of this sum $75 must accompany the application, of which $50 shall be returned if candidate is not accepted for examination. No application will be acted on until the $75 application fee is received. The remaining $75 of the total examination fee of $150 must be paid to the secretary on notification that the candidate has been accepted. A reexamination fee of $75 is required of candidates conditioned in one or more subjects.

4. The fees have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expense.

5. The application remains valid for three years. An applicant must appear for examination within this time or forfeit the fee.

6. Candidates whose credentials have been found satisfactory and who meet the requirements of the board will be notified 90 days prior to the date of examination. The number of candidates who can be admitted to any one examination is limited. Due to a large number of applications on file, delay in assignment for examination may be inevitable. Appointments will be given in the order applications are accepted and on payment of the balance of the examination fee.

7. The board, acting as a committee of the whole, reserves the right to reject an applicant for any reason deemed advisable and without stating the same, and the action of the board shall be final.

EXAMINATION

Examinations will be held at such time and place as the judgment of the board may dictate. Advance notice of examinations will be given in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the several special journals devoted to otolaryngology. Insofar as is possible these will be held biannually at, or near, the time and place of meeting of the American Medical Association, or special societies, and of the American Academy of Ophthalmology and Otolaryngology. The examinations cover from two to four days.

Scope.—This examination encompasses all phases of otolaryngology and peroral endoscopy, including maxillofacial surgery, and surgery of the neck, excluding the thyroid.

The type of examination is as follows:

1. Clinical, covering the actual handling of patients, including history taking, physical and functional examinations, the use of laboratory and x-ray findings and a discussion of differential diagnosis.

2. Didactic, oral examinations covering all phases of otolaryngology.

3. Gross and microscopic pathology.

4. A written examination may be included when the board deems this advisable.

REEXAMINATION

A candidate who is conditioned in examination may be admitted to a subsequent examination after one year and within the three year period dating from his application, on payment of an additional fee of $75 and 120 days' notice of intention to appear is required.

AMERICAN BOARD OF PATHOLOGY

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A. GENERAL REQUIREMENTS

1. Satisfactory moral and ethical standing in the profession.

2. License to practice medicine or a certificate of the National Board of Medical Examiners.

3. The applicant must devote his time primarily and principally to the practice of pathology.

B. PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a medical school in other countries acceptable to the board.

C. SPECIAL TRAINING AND EXPERIENCE

1. The board admits candidates to examinations who are otherwise eligible and who have had either of two following types of training and experience.

(*a*) After five years, if four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board; or

(*b*) After eleven years if none of the training and experience has been in institutions so approved.

2. The specific requirements for those acceptable after five years are as follows:

(*a*) Pathologic anatomy only.

(1) Four years of supervised study and training in an institution approved for residency training in pathologic anatomy by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed twelve months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. In addition, time, not to exceed twelve months, spent in a department of pathology of an approved school of medicine after the completion of the second year of undergraduate study may be counted for full credit toward the four years.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of pathologic anatomy in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*b*) Clinical pathology only.

(1) Four years of supervised study and training in an institution approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. It is immaterial

whether the candidate holds the title of resident or fellow or assistant. Candidates may, at their own election, substitute not to exceed twelve months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university, for one of the four years. Candidates holding also a master's or doctorate degree in a special field of clinical pathology (bacteriology, serology, chemistry, parasitology, or hematology) may obtain time credit for not more than twelve to twenty-four months toward the four years for this work, regardless of whether it was taken before or after the medical degree. The evaluation of time credit will depend on how much of the broad field of clinical pathology was covered in the graduate work.

(2) One additional year, which may be a continuation of the preceding or may be independent practice of clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board.

(*c*) Pathologic anatomy and clinical pathology.

(1) Four years of supervised study and training divided as follows:

(*a*) Two years of supervised study and training in pathologic anatomy as outlined in the preceding paragraph 2-(*a*)-(1).

(*b*) Two years of supervised study and training in clinical pathology as outlined in the preceding paragraph 2-(*b*)-(1). Candidates declared eligible before July 1, 1953, may at their own election substitute one year (twelve months) of a straight or rotating clinical internship for one year of this special training in clinical pathology. After July 1, 1953, all candidates applying for both pathologic anatomy and clinical pathology will be required to have two years of supervised training in clinical pathology.

(2) One additional year which may be a continuation of the preceding or may be independent practice of both pathologic anatomy and clinical pathology in a hospital approved by the American Medical Association or other institutions acceptable to the board. After July 1, 1953, candidates who elect to claim credit for one year for a clinical internship must take this fifth year as supervised study and training in clinical pathology in institutions approved for residency training in clinical pathology by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates declared eligible after July 1, 1953, who do not take a clinical internship, may, after four years of training as outlined in 2-(1)-(*a*) and (*b*), spend the fifth year in independent practice in an institution or laboratory acceptable to the board.

NOTE: As outlined in the preceding paragraphs, the total time requirements of the board are unchanged after July 1, 1953, namely, five years of study or practice after graduation from medical school, with exceptions noted in sections 2-(*a*)-(1) and 2-(*b*)-(1).

3. The specific requirements for those acceptable after eleven years are as follows:

(*a*) The practice of pathology under circumstances acceptable to the board for a period of not less than eleven years. At the election of the candidates, a period not to exceed one year of straight or rotating clinical internship may be substituted for one of the eleven years. For those candidates in this category who have had some special study and training in pathologic anatomy or clinical pathology acceptable under paragraphs 2-(*a*), (*b*) or (*c*), double time credit will be allowed. Thus, if a person has two years of acceptable supervised study and training, only seven years of practice are required.

D. Special Qualifications

1. Prior to Dec. 31, 1947, the board at its discretion certified candidates without examination, if the following conditions were met as of July 1, 1939:

(*a*) That the candidate has been for a period of five years of professorial rank in a department of pathology in an approved medical school; or

(*b*) That the candidate had been practicing pathology for ten years in a senior position in a hospital having an adequate department of pathology, approved by the Council on Medical Education and Hospitals of the American Medical Association or in an institution acceptable to the board.

CREDIT FOR MILITARY SERVICE

Credit may be allowed for training and experience in pathology in the federal services during the period July 1, 1940, to June 30, 1947. This credit for training or experience or both is given on an individual basis and will depend on the opportunity the applicant has had, as indicated by his or her medical service record in the specialty of pathology.

After July 1, 1947, credit for those military services will be given on the same basis as it is in civilian institutions, except that the rule in the preceding paragraph will not apply to reserve officers who continue on active duty or are called to active duty after that date.

SPECIAL FIELDS OF PATHOLOGY, CLINICAL CHEMISTRY, CLINICAL MICROBIOLOGY, HEMATOLOGY, AND NEUROPATHOLOGY

(IN FORCE AFTER JULY 1, 1954)

The trustees of the American Board of Pathology have adopted the following requirements for certification in special fields of pathology, effective July 1, 1954.

Candidates who have met all general requirements and have had special training and experience that is acceptable to the board in a special field of pathologic anatomy or clinical pathology may apply to the board for certification in that special field. The board, at its discretion, may approve this application, and after the candidate has successfully passed a prescribed examination or has fulfilled certain special qualifications (see below, section D), will issue a certificate designating the special field.

A. General Qualifications:

1. Satisfactory moral and ethical standing in the profession.
2. License to practice medicine or a certificate of the National Board of Medical Examiners.
3. The applicant must devote his time primarily and principally to the practice of pathology or the special field of pathology in which he is requesting certification.

B. Professional Education:

1. Graduation from a medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association or graduation from a medical school in other countries acceptable to the board.

C. Special Training and Experience:

The board admits candidates to examination in special fields of pathology who are otherwise eligible and who have had either of the following types of training:

1. Applicants already holding a certificate of the board in clinical pathology or the combined certificate in pathologic anatomy and clinical pathology (for qualification in clinical chemistry, clinical microbiology, and hematology), or in pathologic anatomy (for qualification in neuropathology)—two additional years of supervised training in the special field of their choice in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board.
2. Applicants not holding a certificate in pathologic anatomy or clinical pathology—five years of training in the special field of their choice, provided four of the five years have been in institutions approved by the Council on Medical Education and Hospitals of the American Medical Association or by the board. Candidates may, at their own election, substitute not

to exceed 12 months of a straight or rotating clinical internship or a fellowship or instructorship in any of the preclinical departments of a university for one of the four years. The fifth year may be a continuation of supervised training or may be independent practice of the particular specialty in a hospital approved by the American Medical Association or in other institutions acceptable to the board.

D. Special Qualifications—Certification Without Examination: Prior to Jan. 1, 1960, the board at its discretion may certify candidates without examination if the following conditions have been met as of Jan. 1, 1955:

1. That the candidate has been for a period of five years of professorial rank in the special field of his choice and in an approved medical school, or
2. That the candidate has been practicing his specialty for 10 years in a senior position in a hospital having an adequate department in the special field, approved by the Council on Medical Education and Hospitals of the American Medical Association, or in an institution acceptable to the board.

APPLICATION BLANK AND FEE

Application must be made on the special form which may be procured from the secretary and forwarded with other required credentials and the application fee. An application cannot be given consideration by the board unless it is accompanied by the application fee.

The application or examination fee for candidates is $40. If the candidate fails in his examination he will be admitted to a second examination after one year, but not later than three years. After two reexaminations, the applicant must file a new application and pay an additional fee before a fourth examination will be given.

The application fee of $40 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the board members receive any compensation for their services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the board, his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the examination.

EXAMINATIONS

Written and oral examinations will be held at the discretion of the board at or near the time and place of national medical meetings. If a number of applications from any region of the country are received, an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis, interpretation and technic. The applicant may apply for certification in either pathologic anatomy or clinical pathology or both.

The examinations in pathologic anatomy consist of a written test, an oral examination on gross pathology and a practical examination in microscopic pathology. The examination in clinical pathology consists of a written test and an oral and practical examination in the six phases of clinical pathology: bacteriology, hematology, clinical chemistry, parasitology, serology, and clinical microscopy.

DEFINITIONS

1. Pathologic anatomy is that branch of pathology which deals with the morphologic aspects of disease, recognition being given that that definition covers two phases of pathology.

(*a*) The applied phase with special attention to the description and diagnosis of gross and microscopic specimens.

(*b*) The academic phases of teaching and general morphologic diagnosis.

2. Clinical pathology is that branch of pathology which deals with bacteriology, immunology, clinical chemistry, parasitology, hematology, endocrinology, and clinical microscopy, the application of the physical and biologic sciences to the diagnosis, prognosis, and treatment of disease.

BOARD NOT AN EDUCATIONAL INSTITUTION

The board is in no sense an educational institution and the certificates of the board are not to be considered degrees. Therefore, the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the board.

CRITERIA FOR APPROVAL OF INSTITUTIONS FOR TRAINING IN PATHOLOGY

In Sections C-2-a, C-2-b, and C-2-c of the General Requirements, it is stated that candidates must have certain periods of supervised study and training. The American Board of Pathology, in cooperation with the Council on Medical Education and Hospitals of the American Medical Association, certifies hospitals in the United States as satisfactory for this supervised study and training. Lists of these hospitals are published in the Internship and Residency Number of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION each year. In addition, the American Board of Pathology recognizes certain hospitals outside the United States and certain laboratories not connected with hospitals in the United States. Inquiries concerning these should be directed to the Secretary of the Board.

The general criteria for approval of hospitals and laboratories are both qualitative and quantitative. On the score of quality, consideration is given to the qualifications of the Director of Laboratories and the associates and assistants, the supervision of work of the person in training, the excellence of the educational program, and the exactness and completeness of the laboratory work performed. On the score of quantity, consideration is given to the volume and distribution of laboratory work, both in absolute numbers and in relation to the size of the hospital, to the diversity and completeness of tests performed, to the size and equipment of the laboratory, and to the number of professional and nonprofessional personnel in relation to the volume of work.

In general, the qualitative standards will determine whether or not a hospital or laboratory is approved, and the quantitative standards will determine whether the approval is for 1, 2, 3 or 4 years of credit toward the requirements of the board.

In evaluation of applications the board takes into consideration the following criteria:

1. Director of laboratories or pathologist:
   (*a*) It is required that the responsible head of the laboratory hold the certificate of the American Board of Pathology in the subject for which the hospital is approved, or be eligible for certification, and that he or she spend full time in the hospital. Full time is not interpreted in terms of hours, but rather that the director have no obligation outside the one approved hospital except in a university department of pathology where he and the residents have an opportunity to participate in the educational program;
   (*b*) In special instances, the equivalent of full time by two or more qualified persons will be accepted and one person need not spend the entire working day in the laboratory;
   (*c*) In special instances, two or more hospitals will be approved as a unit with a single full-time director of laboratories if it is apparent that a satisfactory training program can be conducted;
   (*d*) In hospitals with over 350 beds, it is expected that the professional staff, in addition to the pathologist, will include one or more persons with special training and qualifications in the subspecialties of clinical pathology.

2. Technicians:

   There are no absolute criteria, but it is expected that the number of technicians will be proportional to the volume of laboratory work and that, insofar as possible, the technicians will hold the certificate of the Registry of Medical Technologists of the American Society of Clinical Pathologists.

3. Floor space of laboratory:

   In general, it is believed that the size of the laboratory should be related to the size of the hospital and the volume of laboratory work. A minimal ratio is 4 square feet of space in the laboratory, including morgue and autopsy room, for each bed in the hospital.

4. Equipment for the laboratory:

   The variety and completeness of laboratory tests performed depends on the size of the hospital. In all hospitals there should be facilities for the more common tests in clinical pathology, for study of surgical specimens, and for performance of autopsies. In larger hospitals, the variety of tests performed should be larger and in hospitals with over 500 beds all recognized laboratory procedures should be available for study and treatment of the patients.

5. Autopsy percentage:

   No institution with a percentage of less than 15 will be approved, and those institutions with percentages between 15 and 40 will be given special scrutiny.

6. Examination of surgical specimens:

   All surgical specimens should be sent to the laboratory for gross examination, and microscopic examinations should be made unless there are general or special reasons not to do so.

7. Indices:

   There should be indices according to the names of the patients and the diagnoses of all surgical and autopsy material. Indices of clinical pathology are left to the discretion of the hospital.

8. Museum:

   There should be available fixed anatomic and pathologic specimens for study by the staff in proportion to the size of the hospital. Properly filed and indexed color photographs may in part be substituted for museum specimens.

9. Library:

   A reasonably complete library of modern books and recent unbound and bound journals should be available to the hospital, and the more commonly used books and journals should be on hand in the laboratory.

10. Educational program:

    The work of the person in training should be supervised. Conferences, seminars, journal clubs, and demonstrations should be conducted as frequently as the volume of material and the size of the staff justifies. A clinicopathologic conference must be held at least every 2 weeks.

11. Volume of laboratory work:

    (*a*) As indicated in the following categories, no hospitals with less than 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology annually will be approved (Category D), except as outlined in the following paragraphs. It is the belief of the board that less material than this is inadequate for the training of a pathologist.

    (*b*) In the field of clinical pathology, there should be a reasonable diversification of tests and in each category there should be sufficient absolute volume to provide training and experience. There are no absolute criteria, but special scrutiny will be given to a hospital in which there is not a reasonable diversification and variety.

    (*c*) In the field of pathologic anatomy, a deficiency in either autopsies or surgical specimens may be made up by an excess of the other, if the deficiency does not exceed 20 per cent of the minimum required in the ratio of 1 autopsy to 75 surgical specimens. Thus in a hospital approved for one year in pathologic anatomy and clinical pathology, the minimums are 75 autopsies and 1,000 surgical specimens. If a hospital has 2,500 surgical specimens, it is acceptable if there are only 60 autopsies.

If a hospital has met these minimal qualitative and quantitative standards, it will then, on the basis of the following quantitative standards, be approved for 1, 2, 3 or 4 years of training in pathologic anatomy, or clinical pathology, or both, or some special field as shown for the number of residents indicated.

CATEGORY A. In both pathologic anatomy and clinical pathology for 4 years (as required of all candidates seeking certification in both fields who are examined after July 1, 1952).

Minimum: 150 autopsies, 1,750 surgical specimens, and 65,000 tests in clinical pathology for 4 residents. Additional resident for each 50 autopsies or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY B. In both pathologic anatomy and clinical pathology for 3 years. This meets all requirements of the board for supervised training until July 1, 1952. Candidates examined after that date who seek certification in both subjects must take an additional year of supervised training in clinical pathology or pathologic anatomy, in another hospital, which is approved for the deficiency of training required.

Minimum: 125 autopsies, 1,500 surgical specimens and 50,000 tests in clinical pathology for 3 residents. Additional resident for each 50 autopsies, 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY C. In both pathologic anatomy and clinical pathology for 2 years. Candidates taking two years in these institutions must have an additional year (2 years after July 1, 1952) in an institution in category A, B, or D.

Minimum: 100 autopsies, 1,250 surgical specimens, and 40,000 tests in clinical pathology for 2 residents. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY D. In both pathologic anatomy and clinical pathology for 1 year. Candidates taking training in these institutions must have an additional 2 years (3 years after July 1, 1952) in institutions which are approved for the deficiency of training required.

Minimum: 75 autopsies, 1,000 surgical specimens, and 25,000 tests in clinical pathology for 1 resident. Additional resident for each 50 autopsies, or 500 surgical specimens, or 20,000 tests in clinical pathology.

CATEGORY E. In pathologic anatomy only, for 3 or more years. Candidates taking all training in these institutions will not be eligible for certification in clinical pathology unless an additional year (2 years after July 1, 1952) is taken in clinical pathology in institutions which are approved for the deficiency of training required.

Minimum: 175 autopsies and 1,500 surgical specimens for 3 residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY F. In pathologic anatomy only, for 2 years. Candidates taking training in these institutions will not be eligible for certification in clinical pathology unless they take one additional year full time in clinical pathology (2 years after July 1, 1952) in institutions which are approved for the deficiency of training required, and will be eligible in pathologic anatomy only if another year is taken in another institution which is approved for one or more years in pathologic anatomy.

Minimum: 125 autopsies and 1,250 surgical specimens for 2 residents. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY G. In pathologic anatomy only, for 1 year. Candidates training in these institutions will not be eligible in both pathologic anatomy and clinical pathology unless they take an additional year in pathologic anatomy and an additional year (2 years after July 1, 1952) in institutions which are approved

for these periods of training. Candidates seeking certification in pathologic anatomy only must study an additional 2 years in institutions which are approved for that period of training.

Minimum: 75 autopsies and 1,000 surgical specimens for 1 resident. Additional resident for each 50 autopsies or 500 surgical specimens.

CATEGORY H. For postmortem part of pathologic anatomy for 2 years. Credit is never allowed for more than 2 years. Candidates taking training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional year in an institution in Category A, B, C, E, F, or G with assignment to surgical pathology principally. 2. For pathologic anatomy and clinical pathology. An additional year (two years after July 1, 1952) in an institution in Category A, B, C, L, M, or N with assignment to clinical pathology and ½ year assigned to surgical pathology principally, in an institution in Category A, B, C, or J.

Minimum: 125 autopsies for 2 residents. An additional resident for each 60 autopsies.

CATEGORY I. For postmortem part of pathologic anatomy for 1 year. Candidates taking training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional two years in an institution in Category A, B, C, E, F, or G with general assignments. 2. For pathologic anatomy and clinical pathology. An additional year (2 years after July 1, 1952) in an institution in Category A, B, C, L, M or N with assignment to clinical pathology and 1 year to an institution in Category A, B, C, E, F or G.

Minimum: 75 autopsies for 1 resident.

CATEGORY J. Surgical pathology part of pathologic anatomy for 1 year. Credit is never allowed for more than 1 year and the director of the laboratory must hold the certificate of the American Board of Pathology in pathologic anatomy or be eligible for certification. Candidates training in these institutions may pursue further training as follows: 1. For pathologic anatomy only. An additional 2 years in an institution in Category H or in an institution of Category A, B, or C with assignment to postmortem pathology only. 2. For pathologic anatomy and clinical pathology. An additional year (2 years after July 1, 1952) in an institution in Category A, B, C, L, M or N with assignment to clinical pathology full time, and an additional year to an institution in Category A, B, D, E, F, G or H with assignment to postmortem pathology full time.

Minimum: 2,000 surgical specimens for 1 resident. An additional resident for each 1,000 surgical specimens.

Category K. Special pathology as part of pathologic anatomy. Credit for not to exceed ¼ the time credit (1 year if seeking certification in pathologic anatomy only, 6 months if seeking both pathologic anatomy and clinical pathology) of candidates applying in pathologic anatomy may be taken in special laboratories with limited activities such as neuropathology, orthopedic pathology, ophthalmic pathology, etc. The candidate who receives credit in this category may, on request, have the field of special pathology designated on the certificate of the board.

CATEGORY L. Clinical pathology for 3 or more years. Candidates taking 3 years of training in these institutions will not be eligible for pathologic anatomy unless they take an additional 2 years in institutions approved for pathologic anatomy.

Minimum: 100,000 tests in clinical pathology for 3 residents. Additional resident for each 50,000 tests.

CATEGORY M. Clinical pathology for 2 years. Candidates taking two years' training in these institutions must take the same additional training as in Category L to be eligible for pathologic anatomy also. To be eligible for clinical pathology only, an additional year of clinical pathology must be taken in an approved institution.

Minimum: 75,000 tests in clinical pathology for 2 residents. An additional resident for each 50,000 tests.

1. To avoid misunderstanding, the board urges any candidate whose training is not clearly covered in these regulations to communicate with the office of the executive secretary. Whenever possible, this should be done before entering upon the appointment in question.

CATEGORY N. Clinical pathology for 1 year. Candidates taking training in those institutions must take an additional 2 years in an institution in Category A, B, C, L, or M assigned to clinical pathology for eligibility in clinical pathology only. To be eligible in pathologic anatomy and clinical pathology, an additional 2 years in approved institutions is required.

Minimum: 50,000 tests in clinical pathology for 1 resident.

CATEGORY O. Special clinical pathology as part of clinical pathology. Candidates applying for clinical pathology only may receive credit for not in excess of ¼ of the training period (1 year if seeking certification in clinical pathology only, six months if seeking both pathologic anatomy and clinical pathology) for work in a special field of clinical pathology, such as bacteriology, serology, etc. Under these circumstances, on request, the special field will be designated on the certificate of the board.

CATEGORY P. Research: Residence in certain institutions in which full time is devoted to research with a direct application to the practice of pathologic anatomy or clinical pathology may be accepted for credit not to exceed one-third the time requirement (20 months if no clinical internship, 16 months if a clinical internship was taken). The board encourages research and believes that all candidates should carry on investigation during their training in all institutions. Therefore, this category is only for those wishing to do full time research.

AMERICAN BOARD OF PEDIATRICS

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REQUIREMENTS FOR CERTIFICATION [1]

All candidates for examination for certification must meet the following requirements:

1. Graduation from an approved medical school.

2. One year of rotating, pediatric, or other internship in an approved hospital.

3. Two years of specialized residency-type training in an approved pediatric center.

On May 1, 1946, it was ruled that at least one year of the two years of required residency training must be a full time medical pediatric in-patient residency or internship in an approved institution. Because of the shortage of residencies, the board at this time voted that "temporarily" the second year of required residency training might be met in the ways listed below, although the board recommends that whenever possible candidates complete the two years as regular residents.

(*a*) All applicants admitted to approved graduate or postgraduate courses in pediatrics on or after July 1, 1950, shall receive residency training credit for that number of months actually spent in full time attendance at such courses, in excess of three months and up to a maximum of twelve months. No credit shall be granted for part time graduate or postgraduate courses. Courses of less than three months are credited only under special circumstances.

(*b*) A maximum of three months' credit each is allowed for full time residency type training in allied pediatric subjects, such as pediatric allergy, pediatric psychiatry, pediatric pathology, pediatric radiology, newborn service, etc.

(c) A maximum of six months' credit is allowed for residency training in an approved contagious disease hospital.

4. A subsequent term of two years of specialized study or practice or a combination of the two. Credit for one year toward this requirement is allowed for medical military service regardless of the assignment. Credit in excess of one year may be granted if the medical officer is engaged in full-time pediatrics, or may be prorated if a considerable proportion of time is spent in pediatrics. It must be noted, however, that the maximum credit that any candidate may receive toward the practice requirement for work done prior to the completion of residency training is one year.

Attention is invited to the fact that the primary duty of the resident must be the care of patients under supervision, if full credit in satisfaction of the residency training requirement is expected. Research residencies which involve little or no clinical training are creditable for only three months. Research residencies which include significant clinical training may be prorated to a total of six months for a year of service. Teaching fellowships may not be offered in lieu of residency appointments.

Both research residencies and teaching fellowships are, of course, entirely acceptable in satisfaction of the practice or further study requirement. Portions of a research residency not applicable for residency training credit may be carried over for practice credit.

Preceptorships are not accepted for credit toward the residency requirement, but are accepted toward the practice requirement.

The board defines service in a pediatric center as full time devoted to rounded experience in an approved hospital which includes responsibility for care of patients on ward and outpatient services, experience with newborn, including prematures, and both therapeutic and preventive pediatrics. It is expected that the service will include adequate graduate training in the basic medical sciences, as well as in the clinical, laboratory, and public health aspects of the specialty.

GRADUATES OF MEDICAL SCHOOLS IN CANADA

Graduates of approved medical schools in Canada and those who have received their internship and residency training in pediatrics in hospitals approved by the Royal College of Physicians and Surgeons of Canada, will be eligible for examination for certification under the same regulations as those trained in the United States.

GRADUATES OF FOREIGN MEDICAL SCHOOLS

Citizens of the United States.—Effective Jan. 1, 1954, citizens of the United States of America who are graduates of medical schools other than those in the United States and Canada, will be processed for eligibility for examination for certification, if they can meet all the following requirements:

1. They are graduates of a medical school recommended by the Council on Medical Education and Hospitals of the American Medical Association.
2. They hold a license to practice in the United States.
3. They can meet the internship and residency training requirements of the board as detailed above with the following provisions:
   (a) Internship and residency training must be served in hospitals approved by the board in the United States.
   (b) A maximum of the internship and one year of residency training may be allowed for such experience obtained in a small list of foreign hospitals recognized by the board. The other year of residency training must be served in a straight inpatient medical pediatric residency appointment in an approved hospital in the United States.

Citizens of Other Countries.—Properly qualified candidates who are permanent residents in and citizens of other countries and are legally qualified to practice medicine there, and who have received their training in pediatrics in the United States of America or Canada may apply for certification by the American Board of Pediatrics. A special certificate may be issued to foreign candidates (not citizens of the United States of America or Canada), who have received their training in pediatrics in the United States of America or Canada and who are returning to their own country at the end of their training period, upon passing successfully the regular examination of this board, without completion of the requirement of two full years in the practice of pediatrics. This special certificate shall be appropriately identified to distinguish it from the regular certificate of this board. Upon completion of the above training requirements, all candidates must pass both written and oral examinations prior to certification.

INFORMATION CONCERNING EXAMINATIONS

The examinations for certification are given in two sections: Part I is written; Part II is an oral examination.

PART I—WRITTEN

Written examinations are objective in type and are given once each year, usually in January, simultaneously at a number of places scattered throughout the country. Effective Jan. 1, 1953, candidates must pass the written examination before admission to the oral examination will be authorized. In case of failure, the written examination may be retaken at yearly intervals for a total of three times.

PART II—ORAL

Oral examinations are held four to six times each year at centers offering suitable facilities, in locations determined by proximity to the largest number of eligible candidates. One examination session each year is scheduled at a location closer to candidates from some less populous area. As far as possible, candidates are given a choice of location, taking into account date application is filed, date of eligibility, and proximity to the examination site.

APPLICATION

Application must be made on special blanks, which will be furnished by the executive secretary after a preliminary survey of the applicant's training. Applications may be submitted one year in advance of eligibility date; they will not be accepted earlier. The number of candidates admitted to a given written examination will be determined by the number who can be examined orally during that year, plus a reasonable number of alternates.

FEES

The application fee is $100.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year in a full-time medical inpatient residency in an approved institution. He must then reapply as a new candidate and pay a new fee.

POSTPONEMENT OF EXAMINATION

After acceptance of his application a candidate is expected to take the next written examination offered. If desired, he may postpone this examination for one more year. Any further postponement must be for due cause acceptable to the board.

After having passed the written examination, a candidate must appear for oral examination within two years, unless excused for due cause by the board.

After failure in either Part I or Part II, a candidate must appear for reexamination within two years unless excused for due cause by the board.

Failure to appear for examination within the period indicated above, unless excused by the board, will result in loss of eligibility to appear for examination. In this case $25 of the fee will be retained as a processing charge and the balance will be returned to the candidate. In order to be reinstated, a candidate must then submit a new application and a new fee.

LETTERS OF RECOMMENDATION AND BIBLIOGRAPHY

Letters from two competent pediatricians recommending each applicant must be sent to the executive secretary of the board. These letters should not accompany the application, but should be sent directly to the executive secretary. No member of the board, or official examiner, may recommend any applicant.

A list of papers or books published should be sent in with the application blank.

PURPOSE OF EXAMINATIONS

The purpose of these examinations is to determine the applicant's competency to practice pediatrics of high quality. Emphasis is therefore placed on practical aspects, but since good practice is founded on sound scientific data, the candidate must be prepared to demonstrate that he has a working knowledge of these basic data.

Clinical and abstract aspects of growth and development are fundamental parts of pediatric training, and about one-fourth of the oral examination is devoted to this phase of the subject. Diagnosis and treatment of disease fill another quarter, and the remainder of the examination is devoted to study and discussion of "cases."

Candidates who are admitted to the oral examination (Part II) will not be informed of their grade on the written portion. Their relative standing in Part I will, however, be utilized in the final decision with regard to passing.

Candidates who fail after taking Part II will not be required to retake Part I but may be advised to do so in order that they may have an opportunity to improve a low score.

CERTIFICATION IN SUBSPECIALTY OF ALLERGY BY THE AMERICAN BOARD OF PEDIATRICS, INC.

MEMBERS—SUBSPECIALTY BOARD OF PEDIATRIC ALLERGY

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WILLIAM C. DEAMER, San Francisco.

JEROME GLASER, Rochester, N. Y.

JAMES OVERALL, Nashville, Tenn.

BRET RATNER, New York.

ALBERT STOESSER, Minneapolis.

The American Board of Pediatrics, Inc., has established certification in allergy as a subspecialty of pediatrics.

All candidates must pass the written and oral examinations in pediatrics before submitting an application for examination in allergy.

Each allergy application is individually considered and must be accepted by the subspecialty board.

INFORMATION CONCERNING EXAMINATIONS

Allergy examinations consist of written and oral portions. The written examination will be given once a year under a local monitor and must be passed before admission to the oral examination will be authorized. Oral examinations will be held at times and places designated by the Chairman of the Subspecialty Board. Ample notice will be sent to candidates by the executive secretary.

FAILURE IN EXAMINATIONS

As indicated above, a written examination must be passed before a candidate is eligible for oral examination. Reexaminations may be taken one and two years later. After a third failure, the situation will be reviewed by the board and a decision concerning subsequent procedure will be made.

Applicants who fail an oral examination become eligible for a second examination after a year has elapsed. After a second failure another examination will be permitted in one year. Before becoming eligible for a fourth examination a candidate must serve one year full time in a satisfactory allergy clinic and its hospital including training in both allergy and pediatrics.

FEES

The application fee for certification in allergy will be $100 effective July 1, 1952.

The full fee must be remitted with the application. Refund will be made only if the applicant is refused examination for reason other than failure in the same.

No additional fee is required for second and third written examinations. The fee for second and third oral examinations is $50 each.

Members of the board receive no financial recompense of any kind beyond their travel expenses to examinations and board meetings.

Application forms will be forwarded on request to the office of the executive secretary and should be returned to that office when completed. All correspondence should be addressed to him.

REQUIREMENTS

1. Completion of two years of approved residency training in pediatrics.

2. Two years full time in a satisfactory allergy clinic and its hospital, including training in both allergy and pediatrics, or

3. One year full time in a satisfactory allergy clinic and its hospital, and two additional years of full attendance in a satisfactory allergy clinic and its activities, or

4. Five years attendance of not less than 300 hours per year at an allergy clinic associated with an approved medical school or in hospital clinics specifically approved for this purpose.

5. Preceptorship training alone is not acceptable. It may be utilized in combination with the methods outlined in paragraphs three and four above or with a full time formal graduate or postgraduate course in allergy to satisfy portions of the second and third years in three, or one of the five years in four.

The clinics should be in hospitals that have been accepted by the Council on Medical Education and Hospitals of the American Medical Association, and by the American Board of Pediatrics for training and certification in Pediatrics.

In general, a satisfactory allergy clinic is one which is headed by a certified allergist.

Under all methods of study, there must be presented evidence of serious work in research or clinical investigation, to demonstrate interest and industry in the study of allergy.

NATURE OF EXAMINATIONS

The candidates must expect a searching examination in both the theory and practice of allergy. This means that they must come prepared to do physical examinations on selected patients, take histories, and to discuss all details in diagnosis and treatment on the patients that have been assigned to them. In addition they may be called upon to discuss any theoretical question that the examiners may choose to bring up.

CERTIFICATE

When accepted the diplomate will receive from the American Board of Pediatrics a certificate in allergy and will be listed as a specialist in allergy.

Prospective applicants for certification in the subspecialty of allergy may apply to the executive secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

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QUALIFICATIONS FOR ELIGIBILITY TO EXAMINATION FOR CERTIFICATION

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

1. GENERAL

A. Satisfactory moral and ethical standing in the profession.

B. Membership in the American Medical Association or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. (Exceptions to the foregoing qualifications shall be made by the American Board of Physical Medicine and Rehabilitation for good and sufficient reasons.)

2. PROFESSIONAL

A. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

B. Completion of an internship, preferably of the general rotating type, of not less than one year in a hospital approved by the same council.

3. SPECIAL TRAINING

A. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council and by the American Board of Physical Medicine and Rehabilitation as competent to provide a satisfactory training in physical medicine and rehabilitation. Each year of training in such an approved program counts as two units against a total of eight units necessary for eligibility to both Parts I and II of the examination (see below). A total of only six credits may be earned in this manner.

B. This period of specialized preparation shall include: (1) graduate training in anatomy (including kinesiology and functional anatomy), physics (including radiation physics, electronics and medical instrumentation), physiology, pathology, and other basic sciences which are necessary to the proper understanding of physical medicine and rehabilitation; (2) an active experience of not less than two years in hospitals, clinics, dispensaries and diagnostic laboratories recognized by the Council on Medical Education and Hospitals and the American Board of Physical Medicine and Rehabilitation.

C. An additional period of not less than two years of practice in physical medicine and rehabilitation. One unit of credit is granted for each year of practice in physical medicine and rehabilitation.

D. Experience comparable to specialized training. Training in approved residency programs in closely allied medical-surgical fields may be acceptable in whole or in part, but maximum credit is limited and based on individual interpretation by the board. In selected cases, at the discretion of the board, two years of specialization in physical medicine and rehabilitation may be accepted as equivalent to one year formal training.

METHOD OF EXAMINATION

The examination for certification by the American Board of Physical Medicine and Rehabilitation is given in two parts. Part I is written, Part II, oral. Part I alone may be taken after the completion of six units of credit. Upon the completion of Part I, Part II may be taken after an additional two units of credit are obtained. Parts I and II combined may be taken only after a total of eight units of credit have been obtained.

The written and oral examination will cover certain aspects of the basic sciences as well as clinical physical medicine and rehabilitation.

A. The basic sciences as related to physical medicine and rehabilitation will include:

(*a*) Anatomy (including kinesiology and functional anatomy).

(*b*) Physics (including radiation physics, electronics, and instrumentation).

(*c*) Physiology (including physiology of movement and physiologic effect of the various physical agents used in physical medicine and rehabilitation).

(*d*) Pathology.

(*e*) Other fundamental sciences. The applicant will be examined concerning his knowledge of such subjects as biochemistry and bacteriology as related to physical medicine and rehabilitation.

B. The clinical aspects of physical medicine and rehabilitation will include:

(*a*) Those diseases and conditions that come within the field of physical medicine and rehabilitation. These include arthritis and the various rheumatic diseases, neuromuscular diseases such as poliomyelitis, cerebral palsy, and paraplegia, and musculoskeletal diseases, including the large group of traumatic and orthopedic conditions.

(*b*) The clinical usage of such physical agents as heat, water, electricity, ultraviolet radiation, massage and exercise, etc.

(*c*) An understanding of the basic principles of physical medicine and rehabilitation and the ability to coordinate the services of such personnel as clinical psychologist, social service worker, vocational guidance worker, etc.; the ability to prescribe specifically the therapy for patients for execution by the technical and ancillary personnel in a department of physical medicine and rehabilitation.

(*d*) A knowledge of the use of associated personnel within the field of physical medicine and rehabilitation such as the physical therapist, occupational therapist, clinical psychologist, and social service worker. This knowledge must include the ability to specifically prescribe patient care for execution by these therapeutic and technical groups.

APPLICATION

The application form shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, length of time practice has been limited to physical medicine and rehabilitation, membership in medical societies, medical papers published, and the names of three well known physicians to whom the board may write for professional and character references. Three letters of reference must be submitted with the application.

The application shall also be accompanied by one recent signed photograph of the candidate mounted on the application and the registration and examination fee of $100, which fee will cover both the written and oral examinations. (In case of rejection of application, this fee will be refunded with the exception of $15, which will be considered as a registration fee.)

CERTIFICATES

The certificate issued by the American Board of Physical Medicine and Rehabilitation shall be in such form as to comply with the articles of incorporation and bylaws and shall be signed by the chairman and the secretary-treasurer of the board and shall bear the official seal of the board.

Certificates of the board shall be issued to the effect that the applicant has been found qualified to practice physical medicine and rehabilitation.

AMERICAN BOARD OF PLASTIC SURGERY

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REQUIREMENTS

GENERAL QUALIFICATIONS

The following requirements are in agreement with those promulgated by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association.

1. Moral and ethical standing in the profession satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Those whose activities are limited to the practice of plastic surgery.

3. This board will accept as applicants for examination only those who are full citizens of the United States or Canada. Notarized statements, not original citizenship papers, attesting to the fact of full citizenship in the United States or Canada must be furnished by foreign born applicants when the application is filed. Such candidates must have at least two years of practice in plastic surgery in North America after completing the training required by the board.

PROFESSIONAL REQUIREMENTS FOR QUALIFICATION

The board considers the requirements outlined below to be minimal in attaining its purposes, and encourages candidates to take advantage of broadening experience in other fields. Candidates must fulfill the requirements which are in force at the time of their examination and/or certification.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable by the board.

2. Completion of an internship of not less than one year in a hospital approved by the same Council, or what would constitute in the opinion of the board the equivalent of such training.

3. Two years of postgraduate work in general surgery beyond the intern year, as a resident or an assistant resident in an approved hospital, or a period of training gained elsewhere judged by the board to be the equivalent of such training.

4. Training in general plastic surgery (including maxillofacial surgery) in an acceptable residency [1] or preceptorship for an additional period of not less than two years, also be taken in an approved hospital,[1] or under auspices satisfactory to this board.

5. During these years of training following the internship year, a candidate must hold positions of increasing responsibility for the care and management of patients with surgical conditions. When a candidate receives his training in more than one institution, it is equally imperative that he hold positions of increasing responsibility. He must have sufficient operative experience to acquire surgical skill and judgment through the performance of surgical operations with a high degree of responsibility, but under circumstances providing adequate opportunity for consultation and advice.

6. An additional period of not less than two years of practice in plastic surgery. If a candidate elects to spend one or two additional years in approved training in plastic surgery, one year of such training will be credited toward the required two years of private practice if it can be demonstrated that the candidate held a position of increasing responsibility. It is imperative that one year be in actual private practice in such instances.

The above training may be taken as a resident in an approved hospital, or under a preceptorship offering equivalent training. By the latter statement it is meant that one may secure the necessary and specified training as an assistant to an accredited plastic surgeon providing suitable facilities for the education of the candidate are offered.

Credit for work done in governmental plastic surgery residencies (Army, Navy, VA hospitals) is limited to one year regardless of the time put in by the trainee, and must be supplemented by an additional year of prescribed training in a civilian plastic surgery residency or preceptorship.

The period of special training should emphasize the relation of the basic sciences—anatomy, pathology, physiology, biochemistry, bacteriology—to the application of surgical principles which are fundamental in all branches of surgery, and especially to plastic surgery. In addition, the candidate must understand and be trained in the following subjects: the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, narcotics and hypnotics, wound healing, etc.

Because of vagaries of training, such as changes from one specialty to another, interims of military duty and other service to the country, the aptitude and skill of candidates, the board may, at its discretion, review and make recommendations for or against certification of certain applicants outside of the listed qualifications and requirements.

The board reserves the privilege of requesting lists of operations done solely by the candidate for one or more years, or of requesting special and extra examinations, written or oral and practical, and of requesting any specific data concerning the candidate that may be deemed advisable before making final decision for certification.

Eligibility rulings or an evaluation of a candidate's qualifications or training cannot be made by the secretary or by any one member of the board. Official evaluations of qualifications are made only by the Committee on Credentials and Requirements, or by the entire board where necessary, after a review of the candidate's formal application for such rulings. The applicant must allow at least two months for such requests to make the rounds of the committee.

TRAINING FACILITIES

The American Board of Plastic Surgery, in cooperation with the Council on Medical Education and Hospitals of the A. M. A. and the American College of Surgeons, evaluates training facilities in institutions providing acceptable residencies in plastic surgery. The board does not assume the responsibility for independent inspection and approval of residencies. It will inspect and make recommendations for or against approval of a residency in plastic surgery only after the director of the residency has applied to the Council on Medical Education and Hospitals of the American Medical Association for approval of the residency, and after the Council has notified the board to that effect. Therefore any diplomate of the board wishing approval of a residency under his supervision should apply to the Council for such approval. The board will make its own inspection, preferably at the same time as the A. M. A. Council inspection, and will report its findings to the Council. Upon completion of consideration by the Council and the board, the hospital will be notified by the Council of the joint action which has been taken, and the hospital and the secretary of the board will be notified simultaneously by the Council to avoid any misunderstanding as to the status of the program.

In certain instances the board will accept, in lieu of the required two years' training in an approved residency, training in a preceptorship under a fully qualified plastic surgeon when such

1. An acceptable residency is one that has been approved by the Council on Medical Education and Hospitals of the American Medical Association.

preceptorship is properly organized and supervised to give the trainee adequate experience and training in plastic surgery of a well-rounded nature. Certain established preceptorships are given full approval. New preceptorships will be given tentative approval in advance on presentation to the board by the preceptor of a well-rounded plan of training. In such instances the trainee will be required to keep a detailed record of his experience, presenting this report to the board at intervals of six months. The preceptee should request the proper forms for reporting this training from the office of the board. If the preceptorship is found adequate in scope, it will be transferred to the fully approved list. Neither the board nor its individual members can be responsible for the placing of applicants for training. The board will consider those residencies approved by the Council on Medical Education and Hospitals of the A. M. A. as acceptable facilities for training in plastic surgery.

It should be kept in mind by all that the primary interest of the board is to encourage well rounded training in plastic surgery with the aim of producing plastic surgeons capable of doing good work in the wide variety of cases which may come under their care. The standards set up by the board, both for preliminary general surgery and for specialized plastic surgery training, are established in an effort to further this aim. The quality of the training received should be reflected in the candidate's ability to achieve good results in his practice and the examinations of the board are an attempt to judge the ability of the candidate in the specialty of plastic surgery.

SUGGESTIONS FOR TRAINING IN PLASTIC SURGERY

A residency in plastic surgery is one in which a hospital appointment for training in plastic surgery is given the trainee. In a preceptorship in plastic surgery no such appointment is given.

While the board permits flexibility in training, approved residencies and preceptorships should be under fully qualified plastic surgeons. Those trained in preceptorships will be judged by the candidate's ability to make the most of his training and to show adequate ability in all phases of the subject.

There must be teaching in either a residency or a preceptorship—instruction in the basic sciences and in the basic principles of plastic surgery—if not in actual courses, then by conferences, ward rounds, lectures by men on the service or other services, or by visiting doctors.

A resident or assistant resident in plastic surgery should have a full time appointment from an A. M. A. Council-approved hospital or hospitals. A preceptee does not have such an appointment. A residency should preferably be in connection with a teaching hospital having medical school affiliations or be under the Dean's Committee of Veterans Administration hospitals. An acceptable residency is one that is approved by the Council on Medical Education and Hospitals of the American Medical Association.

Before training in plastic surgery is begun, the plastic surgeon in charge of the residency or preceptorship should ascertain that the trainee's preliminary training in general surgery meets the requirements of the board, that is two years of residency training in general surgery after the internship year.

The training in plastic and maxillofacial surgery (at least two years) whether in a residency or a preceptorship, should cover a wide field of plastic surgery, both as to type and anatomic distribution. It should include experience in the treatment of congenital and acquired defects and deformities of the face, neck, body, and extremities, for both functional and esthetic reasons. There should be available sufficient material of a diversified nature so that the trainee will be able to pass the examinations of the board after the period of training and the two additional years of private practice. If the available material on one service is inadequate, the deficiency should be made up by affiliation with another plastic surgeon on another service so that a broad experience will be obtained in plastic surgery. The trainee should be provided an opportunity to operate under the direct supervision of the plastic surgeon in charge, and with increasing ability, to be given an opportunity to operate independently on suitable cases under more remote supervision.

RESIDENCY INFORMATION SERVICE

The Council on Medical Education and Hospitals of the American Medical Association maintains a "Residency Information Service," published quarterly, giving lists of available residency appointments in approved services in the specialties. This bulletin, showing available openings in residency appointments in plastic surgery, and other specialties, may be had on request from the Council.

MILITARY CREDIT

Credit for military service is given on an individual basis, each case being considered on its own merits and the amount of credit allowed is determined by the board when the information is submitted with the application.

MEDICAL OFFICER'S PROFESSIONAL TRAINING RECORD

The Medical Officer's Professional Training Record (DD Form 408) is a record maintained by individual Medical Corps officers for presentation to the various authorized accrediting boards toward certification. This record is presented by the officer to the boards for evaluation of the military experience acquired by Medical Corps officers while serving in the Army Medical Service. This form has been prepared by the Surgeons General of the armed services with the assistance of the Council on Medical Education and Hospitals of the American Medical Association and is distributed by the offices of the Surgeons General to their personnel. It is highly important that prospective applicants obtain a copy of this form and that it be submitted with their credentials for evaluation by the board.

CASE REPORTS

On approval by the board of a candidate's application for certification, each candidate is required to submit to the board 35 or more case reports illustrative of his independent work in the field of general plastic surgery. Case reports must be submitted within one year from the time of such request; otherwise a new application must be filed. These case reports shall conform to conditions which the board may from time to time specify and the case reports must be approved by the board before the candidate is admitted to examination. **Case reports must be received in the Office of the Board by Jan. 1 for those who desire to be considered for the spring (May-June) examinations of the board and by June 1 for the fall (October-November) examinations. There will be no exceptions to these two deadlines.**

The 35 case reports must be of a diversified nature and must be submitted to the office of the board, together with photographs. **To be accepted, case reports must be assembled according to the following instructions.** The group must include a variety of material from the entire body rather than a number of cases of one type, and should carry the candidate's personal deductions, conclusions and comments and should be sufficiently detailed to show if the conclusions drawn indicate a grasp of the subject and if the results justify the procedure.

Each case report should be individually assembled, typed on letter-size paper (8½ by 11 in.), with the candidate's name and the number of the case on each page. Each report should have a cover-sheet with the candidate's name, the number of the case, hospital number, diagnosis and a brief summary of the case. The pages of each report should be stapled together securely and placed in a letter-file folder. Photographs of conditions and drawings of operative technique, illustrative of each case, should be included and securely attached to each case report, with the name of the candidate and the number of the case indicated. Cases should be chosen from the private practice of the candidate or from the hospital or clinic service. The initials, color, age, and occupation of each patient should be stated, as should the name of the hospital where treated and dates of admission, operation and discharge. The important details of family history, if relevant, and of the previous history should be given. The history of the condition for which the patient consulted candidate should be stated clearly and concisely, indicating previous treat-

ment, if any, and the mental, social, or economic factors involved. The physical examination of the patient with special reference to the existing deformities should be carefully described. All laboratory and other special examinations, such as roentgenograms, which were made, should be reported, with a statement of what was determined by them. The indications for operation and for the type of operation employed should be given, and the preliminary treatment and the type of anesthesia used should be stated. A full description of the operative technique with methods of hemostasis, suture, and drainage, if any, and the name of the assistant should be given. The late and early postoperative course and results should be described. Before and after photographs should be submitted, and all photographs should be uniform in size, not less than 3 by 4 in. (Kodachrome transparencies not acceptable), mounted on a sheet 8½ by 11 in. (letter-file folder weight), made by a sharp focus lens from untouched negatives with identical lighting conditions, exposure and developing, not reversed, to show conditions before and after operations with clear detail.

If the case reports, and lists of operation when requested, are approved, the candidate will receive subsequent information regarding taking the examinations. The board at its discretion may request certification of case reports by the hospital where the operations were performed. The following form should accompany the case reports: "I hereby certify that the planning and essential surgical procedures described herein were carried out by me as an independent operator."

Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications but on his professional ability as a plastic surgeon, his ethical standing in the community, and the strict limitation of his work to plastic surgery.

A candidate should remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his ability.

EXAMINATIONS

The qualifying examinations are divided into two parts, the written examination, and the oral and practical examination.

The examinations are given twice yearly, in the spring and fall. The spring examination is given immediately preceding, during, or following the annual meeting of the American Association of Plastic Surgeons (usually in May), and the fall examination is given immediately preceding, during, or following the annual meeting of the American Society of Plastic and Reconstructive Surgery (usually in October). Candidates are required to go to the designated center for the qualifying examination, which lasts three days. These centers will be the city in which the meetings of these two organizations are held if the proper clinic and hospital facilities are available, otherwise in some nearby city where such material is available. Arrangements for all examinations are made by the Examination Committee.

The written examination will consume all of the first day and half of the second day. The oral and practical examination will consume the afternoon of the second day and all of the third day. The subjects of the written examination are, (1) theory and practice of plastic surgery, (2) applied anatomy, applied physiology, (3) pathology, bacteriology, clinical laboratory methods, (pharmacology), (4) reaction of tissue to injury, surgical accidents, anesthesia.

A general oral examination pertaining to plastic surgery will be given. In the practical part of the examination, the examiners will present a group of patients for examination by the candidates, and the candidates will be quizzed on methods of procedure—diagnosis, treatment, technic, and so on. Slides of preoperative conditions will be shown on a screen and the candidate asked to make a quick diagnosis of the items and tabulate in the order of their importance and methods of treatment. Microscopic slides of the average pathological tissue falling within the province of the plastic surgeon will be given the candidates on which they will be asked to write a description and diagnosis.

Prior to the examination, the candidate will be visited at his place of practice by a member or members of the board to observe him operate and to examine a number of his pre- and postoperative cases.

To be considered as passing, the candidate will be required to receive a grade of at least 65 per cent in each portion of the written examination and an average of 75 per cent on the entire written and oral examination.

REEXAMINATIONS

Candidates who have failed in any portion of the examination may be admitted to another examination after one year, or within three years, except in such cases as the board may for good and sufficient reason deny a candidate the privilege of reexamination. A candidate who fails one reexamination will be admitted for further examination only after submitting evidence of additional study and preparation. The candidate must give 60 days' notice requesting reexamination and pay a fee of $25 for the written examination and $25 for the oral and practical examination. The examiners conducting the first examination will not be eligible to conduct the reexamination.

CERTIFICATION

After a candidate has met the requirements for eligibility and passed the examinations of the board, a certificate attesting his qualifications in plastic surgery will be issued to him by the board, signed by its officers and having the seal of the board affixed thereto. It shall be the prerogative of the board to determine the fitness professionally and ethically of any candidate for its certificate, and the action or decision of the board regarding the certification of any candidate shall be final.

FEES

The fee for application and examination is $150. Of this sum, $25 must accompany the application and the remaining $125 must be paid when the candidate is notified of acceptance for examination. There will be no refunds. This fee may be increased at the discretion of the board. The board is a nonprofit organization and the fees of candidates are used solely for defraying the actual expenses of the board. The members of the board serve without remuneration. Because of the limited number of surgeons certified by this board it is necessary for a limited time to request a voluntary annual prorata contribution from diplomates after the first year's certification to help defray expenses.

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ELIGIBILITY REQUIREMENTS FOR EXAMINATION

GENERAL REQUIREMENTS

1. Good moral character and high ethical and professional standing.

2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the board.

3. An internship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the board.

4. Licensure to practice medicine in the United States or in the Dominion of Canada.

SPECIAL REQUIREMENTS IN PUBLIC HEALTH

1. Successful completion (after internship) of at least one academic year of graduate study leading to the degree of Master of Public Health or an equivalent degree or diploma; or training or study deemed by the board to be substantially equivalent to such graduate study:

2.* Residency (after internship) of at least two years of field experience in general public health practice, which included planned instruction, observation, and active participation in a comprehensive, organized, public health program, one year of which may be an approved clinical residency in a field directly related to public health;

3. A period (after internship) of not less than three years, in addition to 1 and 2 above, of special training in or teaching or practice of public health; and

4. Limitation of practice to full-time teaching or practice of public health as a specialty.

SPECIAL REQUIREMENTS IN AVIATION MEDICINE

1. Successful completion (after internship) of at least two academic years of graduate study in preventive medicine and aviation medicine, one year of which graduate study shall be in a school of public health accredited for the purpose of such graduate study by the American Public Health Association and one year of which shall be in a school of aviation medicine accredited for the purpose of such graduate study by the Council on Medical Education and Hospitals of the American Medical Association; or training and study deemed by the board to be substantially equivalent to such graduate study;

2. Residency (after internship) of at least two years of supervised experience in aviation medical practice, which included planned instruction, observation, and active participation in a comprehensive, organized program of aviation medicine, one year of which may be an approved clinical residency in a field directly related to aviation medicine.

3. A period (after internship) of not less than two years, in addition to 1 and 2 above, of special training in or teaching or practice of aviation medicine;

4. Limitation of practice to full-time teaching, research, or practice of aviation medicine; and

5. Regular and frequent participation in aerial flight.

Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

APPLICATIONS

Each application for examination must be made on the prescribed form (which may be obtained from the secretary) and be accompanied by the required documentation, and must be filed with the secretary, ordinarily not less than 90 days prior to the date of the examination. The application must be accompanied by an application fee and two recent, clear, unmounted, autographed photographs of the applicant, one of which should be attached to the application and the other unattached.

FEES

The fee for application and examination is $90, payable as indicated below; additional fees are payable for reexamination, as set forth below, but no additional fee is payable for the issuance of a certificate.

Application fee, $15. No application will be considered unless accompanied by the application fee. The application fee is not refundable.

Examination fee, $75. This fee is payable when the candidate is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

No member of the board is authorized to give informal opinions as to the eligibility of the candidates. The determination of eligibility will be made only by the board after receiving full application information. Each candidate must comply with board regulations in effect at the time the examination is taken, and also those in effect at the time the certificate (if any) is issued, regardless of when the original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional information within two years of the filing date of his original application without payment of an additional application fee.

Applicants who are declared eligible for examination but who fail to submit to examination within three years of the date of the filing of the application are required to file a new application and to pay a new application fee.

CERTIFICATION IN AVIATION MEDICINE WITHOUT EXAMINATION (THE FOUNDERS GROUP)

The bylaws authorize the board, for a limited period of time, to excuse from examination specialists in aviation medicine who have attained high academic rank or have had a minimum of ten years of distinguished service in the field of aviation medicine and are considered eligible by the board, whether or not they meet the eligibility requirements previously referred to. Applications for consideration as members of the Founders Group must be received not later than July 1, 1954. The application fee must accompany the application, and the examination fee is payable before certification even though the applicant be excused from examination.

EXAMINATIONS

Examinations will be held from time to time and in various places depending upon need as indicated by applications received. Examinations will ordinarily be held in connection with the annual meetings of one or more of the sponsoring societies and may also be held at other times and at other places so located geographically as to minimize travel for the applicants.

The examination consists of three parts:

Part 1 consists of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine. Part 2 is a comprehensive written examination designed to test the knowledge of the applicant in the special field in which he requests certification. Part 3 is an oral or practical examination that will usually be held at the completion of the written examinations. An endeavor will be made to adapt the details of the oral or practical examination to each candidate's experience and practice. The examiners will report on each candidate to the assembled board, by which the results of the examination will be considered.

REEXAMINATION

Candidates failing the first examination taken may, upon timely request, be admitted to a second examination within 18 months following the examination failed, upon payment of an

* Approval of Residency training is in the process of development. Until such time as an adequate program of residency is developed, field training will be evaluated by the Board on an individual basis. Information as to approved residencies may be obtained from the Council on Medical Education and Hospitals or from the Secretary of the Board.

additional fee of $15. If the candidate fails the second examination, a period of 11 months must elapse before admission to a third examination. A fee of $25 is required for admission to the third examination. Candidates failing three examinations will not be admitted to any subsequent examinations unless the board so directs.

CERTIFICATION

On satisfactory completion of the examination and proof to the satisfaction of the board that the applicant is eligible for certification, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in the field specified in his application. The certificate will be signed by the officers of the board and will have its seal affixed. Each certificate remains the property of the board, but the person to whom it is issued shall be entitled to its possession unless and until it is revoked. Any certificate issued by the board may be revoked if evidence, satisfactory to the board, is presented that the applicant was not eligible to receive it at the time of examination or issuance, or that he misstated, misrepresented, or concealed any pertinent fact, or that his license to practice medicine has been suspended or revoked, or that he has ceased to be engaged in the teaching or practice of the specialty in which he has been certified. The issuance of a certificate to any person does not constitute such a person a member of the board.

AMERICAN BOARD OF PROCTOLOGY

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QUALIFICATIONS OF CANDIDATES

General Qualifications and Requirements.—All candidates shall comply with the current regulations of the board, regardless of the time of filing applications. These are as follows:

1. Candidates shall have limited their practice to proctology, shall appear personally before the board, and shall submit to the required examination.

2. They shall deliver to the board an official record of patients hospitalized by them during the year prior to the date of submission of the application if the board requests it.

3. They shall submit a bibliography of papers and books published.

4. They shall possess moral, ethical, and professional qualifications acceptable to the board.

5. They shall possess full citizenship in the country where they practice (limited to countries of North and South America, their possessions and their territories and the Philippine Islands).

Professional Qualifications.—

1. They shall be graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

2. They shall possess a license to practice medicine in the state, territory, or province of their residence.

3. They shall have completed an internship, preferably of the general rotating type, of not less than 12 months in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

4. They shall be members of the American Medical Association or the corresponding medical association recognized by the board in the country in which they reside.

Special Professional Qualifications.—They shall have completed:

1. Two years of approved general surgical residency and two years of approved proctologic residency; or

2. Three years of approved general surgical residency and two years of approved proctologic precepteeship; or

3. Two years of approved general surgical residency and three years of approved proctologic precepteeship.

APPLICATIONS

Each candidate for examination shall submit an application prepared upon the prescribed form which shall be furnished by the secretary of the board. It shall contain a record of the candidate's premedical and medical training, internships, residencies, precepteeships, other postgraduate study, hospital and dispensary appointments, teaching positions, service in the armed forces, service in federal, state, or local government, membership in medical societies, and any additional information considered valuable by the board. The application shall be endorsed by two proctologists. It shall be accompanied by two unmounted autographed recent photographs of the candidate, letters of endorsement from appropriate sources, and the application fee. It shall be filed with the secretary not less than 90 days prior to the date of examination.

EXAMINATIONS

Examinations are conducted at times and places determined by the board and are announced in THE JOURNAL of the American Medical Association. An average of 75% is the passing grade on all examinations. All examination papers are identified only by numbers assigned to candidates, and the examiners do not know the identity of the examinees.

Part 1.—This examination consists of a comprehensive written examination in anatomy, physiology, pathology, bacteriology, biochemistry, and other basic sciences. It is usually held in the spring of the year in several cities of the United States. Candidates who have passed part 1 examinations of the American Board of Surgery or who are diplomates of this board and who have completed required training in proctology may, upon approval of the American Board of Proctology, be excused from taking part 1 of the examinations of the American Board of Proctology.

Part 2.—This examination consists of comprehensive written and oral examinations on the theory and practice of proctology. It includes questions on roentgenologic interpretation and other subjects considered appropriate by the board. Usually this examination is held in the fall of the year in one city of the United States. The oral portion of the examination is conducted by the members of the board or by designated examiners. An attempt is made to ascertain the candidate's knowledge of current proctologic literature, his knowledge of the basic sciences, the extent of his clinical experience, and other qualifications.

Part 3.—This examination is held in the community in which the candidate conducts his professional activities. It may be omitted at the discretion of the board. Candidates required to take part 3 are notified by the secretary and arrangements for the examination are made that are suitable to the candidate and the examiner. The examination shall involve: (1) surgical operations, (2) hospital rounds, (3) hospital and office records, and (4) office practice.

REEXAMINATIONS

A candidate who fails in part 1 or part 2 may be reexamined after one year has elapsed. The act of filing an application for reexamination is the candidate's responsibility. Candidates who have failed a reexamination may petition the board for another examination. With this petition, acceptable evidence of additional preparation shall be submitted. Diplomates of the board who shall have neglected to maintain a degree of satisfactory competence in the practice of proctology, as determined by the board, may be requested to submit to reexamination.

FEES AND DUES

Fees.—Application fee. A fee of $25 shall accompany the application.

Examination fee. A fee of $150 is due and payable when the candidate is notified that he has been approved to take part 1 or part 2 examinations.

Reexamination fee. A fee of $50 is due and payable when the candidate is notified that he has been approved for reexamination in either part 1 or part 2 examination.

Reexamination in Part 3.—Candidates for reexamination in part 3 may be held responsible for payment of expenses incurred by the board in conducting the reexamination. No fee shall be returned to the candidate without board approval. All fees shall be made payable to the American Board of Proctology and shall be sent to the secretary.

Dues.—Each diplomate is required to pay a fee of $10 to the board annually for a period of 10 years following certification.

Fees and dues are utilized to defray expenses incurred by board activities.

The foregoing statement, authorized by the secretary of the American Board of Proctology, should be considered unofficial pending further action by the board.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

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APPLICATION FOR CERTIFICATES

An application, in order to be considered at any meeting of the board, must be in the hands of the secretary of the board not less than 90 days before the date of such meeting. A proper application form may be obtained from the secretary. Application may be made for certification in psychiatry or in neurology or in both fields. Applications will be formally considered only when made on the official application blank in such form as may be adopted from time to time by the board and when accompanied by an application fee in such amount as may be fixed by the board.

The secretary of the board, on receipt of an application, shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association, after which he shall forward the application to the Committee on Credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members of the entire board at any meeting held for such certification.

FORM OF CERTIFICATION

There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certifications shall be in such form as is approved by the Board of Directors.

GENERAL REQUIREMENTS FOR APPLICANTS

Each applicant for a certificate must establish that:

(*a*) He is a physician duly licensed by law to practice medicine.

(*b*) He is of acceptable ethical and professional standing.

(*c*) He is now a member of the American Medical Association or a member of such medical societies as are recognized for purposes of certification by the Council on Medical Education and Hospitals of the American Medical Association. Exceptions to the foregoing may be made at the discretion of the board for good and sufficient reasons.

(*d*) He has received adequate training in psychiatry or neurology, or both, as a specialty.

CLASSES OF APPLICANTS

Class A.—Applicants who graduated from an approved medical school before the foundation of the board (1934) will not be held to the strict interpretation of the published requirements in formal graduate training. Under such circumstances the board will consider the training and experience of the applicant and decide whether or not he will be admitted to the examinations. After Jan. 1, 1954, for such graduates the board will consider 10 years of full-time acceptable experience in psychiatry or neurology in lieu of the formal training requirements. Should the candidate then apply for supplementary certification, the Credentials Committee will require five years of additional acceptable experience in the supplementary field.

Class B.—Applicants who graduated from an approved medical school after 1934 shall fulfil the following requirements.

PROFESSIONAL EDUCATION

1. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose medical training has been received outside the United States and Canada, such training must be satisfactory to the aforementioned Council.

2. Completion of a year's internship approved by the same Council in general medicine, general surgery, pediatrics, or a rotating service.

3. The nine month wartime internships will be accepted as an equivalent of one year.

SPECIALIZED TRAINING

Admission to the examination for certification in psychiatry or in neurology requires a total of five calendar years of training and experience, three years of which must be specialized training obtained in approved training centers, plus two years of experience. Admission to the examination for certification in both psychiatry and neurology requires a total of six calendar years of training and experience, five years of which must be specialized training obtained in approved training centers, plus one year of experience. The specialized training may be subdivided into two and one-half years each in psychiatry and neurology or three years in one subject and two years in the other. The required years of experience should be spent in clinical practice with major responsibility for the care of patients.

This training for psychiatrists should include clinical work with psychoneurotic and psychotic patients, combined with the study of basic psychiatric sciences, medical and social psychol-

ogy, psychopathology, psychotherapy and the physiological therapies, including a basic knowledge of the form, function and pertinent pathology of the nervous system. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training period should include instruction in the psychiatric aspects of general medical and surgical conditions and the behavior disorders of children and adolescents sufficient to develop practical ability to direct the treatment of such conditions. It should also include collaborative work with social workers, clinical psychologists, courts, and other social agencies. The training program of the candidate for certification in psychiatry should include sufficient training in neurology to enable him to recognize and to evaluate the evidences of organic neurological disease.

The training for neurologists should be based on clinical work with adults and children with neurological disorders, including the neurological complications of medical and surgical conditions. This should be combined with study of basic neurological sciences, neuroanatomy, neurophysiology, neuropathology, and neuroroentgenology. This training should be supervised and guided by teachers competent to develop skill and understanding in the utilization of such basic knowledge in dealing with patients. Mere factual knowledge is not sufficient. This training should include sufficient training in psychiatry to enable the candidate to recognize and to evaluate the common psychiatric reactions.

The board offers the foregoing two paragraphs as an outline of desirable training. If, however, the candidate has evidence of equivalent qualifications of training and experience not in the pattern here formulated, this evidence with appropriate documentary support may be included in his application for evaluation and possible approval by the board.

Candidates seeking certification in both neurology and psychiatry or supplementary certification in one after being certified in the other must submit evidence satisfactory to the board of an additional two years of full-time basic training in the supplementary specialty.

Thus, no candidate is eligible for examination by the board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of special training and experience in neurology and psychiatry for certification in both neurology and psychiatry.

The board will give not more than six months of credit for not less than six months of training in an approved training center for internal medicine or pediatrics in lieu of six months of experience to candidates for the certificate in psychiatry or neurology, but not to candidates for certification in both psychiatry and neurology.

The board will give credit for one year of training in child psychiatry providing it is the third year of the required three years of special training required by the board and providing it is taken in a center approved by this board for training in child psychiatry. After July 1, 1956, training credit for work in the field of child psychiatry may be gained only by participation in a hospital residency training program that is regularly approved. After that date, all independent training approval of psychiatric clinics for children is discontinued.

The list of training programs approved by this board and by the Council on Medical Education and Hospitals of the American Medical Association may be found in the current issue of the Internship and Residency Number of THE JOURNAL.

TRAINING IN THE ARMED FORCES

Credit will be granted for one year of wartime military service in the Army, Navy, Public Health Service, and Veterans Administration. Wartime to this board means Dec. 7, 1941, to Feb. 15, 1946. Further credit for specialized training will be granted only if the candidate has received training in an institution recognized by the Council on Medical Education and Hospitals of the American Medical Association and approved by this board. Time beyond one year spent in the above government agencies may be credited to experience providing the candidate has been regularly assigned to a service in neurology or psychiatry.

Training and experience credit toward requirements for examination will be granted for military duty in present emergency under certain conditions. This policy relates to active military medical duty since July 1, 1950. One year of training credit will be granted for one year spent in full-time psychiatric and/or neurological duties. Additional training credit will be granted for that amount of time spent in approved training programs. Experience credit will be granted for any remaining time spent in full-time psychiatric and/or neurological assignments. Double credit will not be granted for any single period of time. For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

EXAMINATIONS

Dates and places of examinations are set by the board at its discretion and shall be announced in THE JOURNAL, in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Diseases*, and in the *Archives of Neurology and Psychiatry*.

Though the purpose of the examination is to test the competence of the candidate in psychiatry or neurology or both, it must not be forgotten that both these medical disciplines constitute part of the broad field of general medicine. The board requires some proficiency in neurology on the part of those it certifies in psychiatry, and vice versa, but examines the candidate in accordance with the certificate he seeks. The examinations will be of such type that no adequately trained person will fail and yet they will be sufficiently searching so that the specialist in fact may be separated from the specialist in name. The practical examination will include the examination of patients under the supervision of the examiner. The manner of examining patients, and the reasoning and deductions therefrom, will constitute an important part of the examination. Oral and practical examinations will be given in the basic sciences with special regard to their clinical implications. Written examinations may be given at the discretion of the board. The examination for certification in psychiatry will differ from the examination for certification in neurology.

PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of $35 which is not returnable. If a preliminary written examination has been decreed, an additional $25 fee will be required at the time of the applicant's acceptance. When notified by the secretary that he is eligible for the oral and practical examination, the candidate shall send to the secretary an examination fee of $65. A candidate who has been certified in either psychiatry or neurology and who has been admitted to supplementary examination for the other certificate shall pay an additional examination fee of $65.

A candidate who has failed in one examination is eligible for reexamination within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees. If he fails the reexamination, he may, after two years have elapsed, submit a new application and $35 fee, present evidence of further training and pay an examination fee of $65.

A candidate who fails in one or two subjects is eligible for reexamination in those subjects within one year on payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees and repeat the entire examination. If he fails the reexamination, he may apply again for the complete examination after two years on submission of evidence of further

training and on payment of an application fee of $35. If admitted to the examination, he must pay a new examination fee of $65.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the secretary at least six weeks before the date of the examination will forfeit half of his examination fee. Any candidate who fails to appear for examination within a period of three years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

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U. V. PORTMANN, Cleveland.
DOUGLAS QUICK, New York.
LEO G. RIGLER, Minneapolis.
B. P. WIDMANN, Philadelphia.
B. R. KIRKLIN, Secretary-Treasurer, 102-110 Second Avenue, S.W., Rochester, Minn.

CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges or license to practice radiology. Certificates of the board shall be issued on one of four forms:

1. A certificate to the effect that the applicant has been found qualified to practice radiology in all of its branches.

2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (*a*) roentgenology; (*b*) diagnostic roentgenology; (*c*) therapeutic radiology.

3. A certificate to the effect that the applicant has been found qualified to practice radiological physics in all of its branches.

4. A certificate to the effect that the applicant has been found qualified to practice radiological physics in one or more of the following special fields: (*a*) x-ray and radium physics; (*b*) medical nuclear physics.

DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1. Radiology is that branch of medicine which deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2. Roentgenology is that branch of radiology which deals with diagnostic and therapeutic application of roentgen rays.

3. Diagnostic roentgenology is that branch of radiology which deals with the diagnostic application of roentgen rays.

4. Therapeutic radiology is that branch of radiology which deals with the therapeutic application of roentgen rays, radium, and radioactive isotopes.

5. Radiological physics is that branch of physics which deals with the medical application of roentgen rays and the radiations from radioisotopes, nuclear reactions and particle accelerators.

6. X-ray and radium physics is that branch of radiological physics which deals with roentgen rays and radium.

7. Medical nuclear physics is that branch of radiological physics which deals with radioisotopes, nuclear reactions, and particle accelerators.

GENERAL REQUIREMENTS

Each applicant for admission to the examination for a certificate in radiology shall be required to present evidence that he has met the following standards:

GENERAL QUALIFICATIONS

1. Satisfactory moral and ethical standing in the profession.

2. A license to practice medicine in the state or county in which he resides.

3. That the applicant holds himself out to be a specialist in radiology or one of its branches as defined under "definitions," and that he devotes his time primarily and principally (at least 75 per cent) to the practice of radiology or one of its branches.

4. That he is a citizen of the United States or Canada. Candidates from other countries must be permanent residents of that country and native citizens thereof.

GENERAL PROFESSIONAL EDUCATION

1. Graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

1. After completion of the internship there shall be a period of special training in radiology of not less than three years in clinics, hospitals or dispensaries recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in radiology. This period of specialized training shall include:

(*a*) Graduate training in pathology, radiation physics, and radiobiology. A period of six months full-time training in pathological anatomy is recommended but where this is not possible to arrange, the student during his three-year training period, may, by attending pathological conferences, postmortem examinations and studying removed tissues, receive adequate training in pathology. It is recommended that radiation physics be taught by a combination of didactic lectures, practical examples, and direct clinical demonstrations.

(*b*) An active experience (residency) of not less than 30 months in an institution, the radiological department of which is recognized and approved by the American Board of Radiology and the Council on Medical Education and Hospitals of the American Medical Association as capable of providing satisfactory training.

(*c*) Examination in the basic sciences of radiology as well as the clinical aspects thereof. These examinations should be given by the student's instructors in order to allow those responsible for his training to certify to the board that he is adequately prepared.

APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical, and radiological), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiologic literature, his membership in medical societies, and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs and the fee of $100 at least six months before the date of the examination.

FEE

A fee of $100 must accompany each application blank. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. As the number of candidates decreases, it may become necessary to raise the fee.

EXAMINATIONS

Each year the board will hold two examinations. The first will be in the spring and the second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology, and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics, and radiobiology, as well as the clinical application of roentgen rays, radium, and radioactive isotopes. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiencies.

REEXAMINATIONS

If the candidate fails in the first examination he will be admitted to a second examination after one year has elapsed but not more than three years. He must give 90 days' notice of his intention to appear for reexamination and pay an additional fee of $50. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $100.

A candidate having failed twice may, after one year has elapsed, file a new application, which must be accompanied by the fee of $100.

AMERICAN BOARD OF SURGERY

THOMAS H. LANMAN, Chairman, Boston.
JOHN H. MULHOLLAND, Vice-Chairman, New York.
WILLIAM A. ALTEMEIER, Cincinnati.
LAWRENCE CHAFFIN, Los Angeles.
CLARENCE E. GARDNER JR., Durham, N. C.
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JAMES D. RIVES, New Orleans.
JOHN D. STEWART, Buffalo.
JOHN M. WAUGH, Rochester, Minn.
JOHN B. FLICK, Secretary and Treasurer, 225 S. Fifteenth Street, Philadelphia, 2.
CLETUS W. SCHWEGMAN, Assistant to the Secretary, Philadelphia.

REQUIREMENTS

GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession and in the community must be satisfactory to the board.

The board, believing that the practice of "fee splitting" is pernicious, leading as it does to a traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Certification is restricted to those whose activities are limited to the practice of surgery, including diagnosis, preoperative and postoperative care.

PRELIMINARY TRAINING

1. Graduation from a medical school of the United States or Canada accredited by the Council on Medical Education and Hospitals of the American Medical Association, or graduation from a foreign school considered acceptable to the board.

2. Completion of an internship (straight, mixed, or rotating) of not less than one year in a hospital approved by the same Council, or its equivalent in the opinion of the board, such as a year of study devoted to a single branch of medicine.

SPECIAL TRAINING

INTRODUCTION

It is not and never has been the policy of the American Board of Surgery to require that a candidate perform a specific number of operations before taking its examination. The only two components of a residency which can be measured are the number of operations performed and the duration of the training period; the more significant and intangible factors are difficult to evaluate. These include:

1. The professional competence and the integrity of the senior staff and their ability and willingness to teach.

2. The responsibility given the resident.

3. The attitude of inquiry pervading the service.

4. The opportunity afforded the resident for study, investigation, and teaching.

Adequate operative experience is concerned more with the variety and magnitude of operations performed than with actual numbers. In certain instances the board may require a special operative inspection.

The board interprets the term "general surgery" in a comprehensive manner and expects candidates to have knowledge of the basic principles applied in the treatment of fractures, trauma and head injuries. Knowledge of the more common procedures in plastic, gynecologic, orthopedic, and urologic surgery is expected. Some elasticity of the program will be allowed to permit persons with preferences for work in specialized fields, experimental surgery or research. In such a program the integration of basic sciences, particularly pathology, with clinical training and material is superior to formal courses.

The most important single factor in the development of a surgeon is the opportunity under guidance and supervision to grow by progressive and succeeding assignments to the stature of complete responsibility.

GROUPS I AND II

The requirements of the board to become eligible for its examinations may be fulfilled by either of the two programs outlined below. Both of these educational programs are considered by the board to be minimal in attaining its purposes.

Group I—A candidate must have completed a four-year graded residency or clinical fellowship in surgery in an institution or institutions acceptable to the board and conference committee. Three of the four years must be spent in general surgery. One of the four years may be spent in any manner which an acceptable program provides.

Group II—As yet there is not a sufficient number of hospitals capable of offering a four-year graded residency in surgery. The board, therefore, will continue to recognize three years of approved residency or fellowship training in a hospital approved by the conference committee. The two additional years over and above this to complete a total of five may be spent in practice limited to surgery carried out under acceptable supervision. One of these two years may be spent in the study of the basic sciences in a fully approved graduate school of medicine.

NOTE: In both Group I and Group II, the supervising surgeon must vouch for the candidate's integrity, surgical judgment and technical skill. Sufficient operative work performed independently under supervision to fortify residency training must be attested to by a statement submitted to the board at the time the candidate makes application.

BASIC SCIENCES

The board does not insist that any special length of time be spent in the basic sciences, but knowledge of these sciences as applied to clinical surgery will be required in the examinations. The board will grant credit for postgraduate work in basic sciences (full time) provided that such study extends over a period of not less than six months.

MILITARY CREDIT

If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in non-approved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

REQUIREMENTS FOR FOREIGN BORN AND FOREIGN TRAINED APPLICANTS

Full citizenship status is required of residents of the United States. United States citizens who are residents of other countries, and citizens of other countries must have completed at least the three year residency training requirements in a hospital in the United States or Canada. In addition, they are required to hold a license to practice surgery in the country in which they hold citizenship. The Examination Committee may, in individual instances, accept foreign training as the equivalent of acceptable residency training in the United States.

APPLICATIONS

Prospective candidates for examination by the board should carefully read the board's requirements as set forth in its Booklet of Information. If, after becoming familiar with the board's requirements, the candidate needs advice as to his training, such may be had by writing to the board's office. When a candidate's training seems to meet the board's requirements, an application blank will be mailed. The processing of the completed application requires a minimum of three months by the board's office. The candidate will then be notified by the secretary as to his acceptability for examination, his deferment, or his ineligibility.

The eligibility of candidates whose training in some respects does not conform to requirements published above will require the action of the Examination Committee of the board which may postpone the candidate's notification of acceptability. Every candidate's final acceptability for examination is based not only on the evaluation of his training qualifications, but on recommendation by the board's advisors as to his professional ability as a surgeon, his ethical standing in the community, and the strict limitation of his work to surgery.

THE FOUNDERS GROUP

The Founders Group, to which were admitted those who had already amply demonstrated their fitness as trained specialists in surgery, was closed in January, 1940.

EXAMINATIONS

The qualifying examination will be divided into Part I (written) and Part II (clinical, bedside, and laboratory). In both of these parts, as previously stated, a knowledge of the practical application of the sciences fundamental to surgery will be required.

Part I

This examination will be given simultaneously in as many centers throughout the country as the board may determine suitable for the purpose, and is held twice a year—in the spring and fall. All applications must be on file in the board's office at least three months in advance of the examination. Candidates who are declared eligible are given ample notice as to the center to which they have been assigned for examination.

The examination in Part I is of the objective, multiple-choice type, and is three hours in length, covering a half-day session. These examinations are designed to cover general surgical problems including the application of the basic sciences of surgery to these problems. Questions will be of various types, and will include case histories, questions which will indicate ability in judging cause and effect, and questions illustrating comparisons and relationships. The tests are written by members of the board with the aid of test specialists of the Educational Testing Service.

Part II

The board may, at its discretion, require that a satisfactory operative report be filed before a candidate is eligible for Part II. Such a report shall be made by a member of the board, Founders Group, or one certified by examination, designated to be present during a major operative procedure performed by the candidate.

Part II of the examination shall be oral and practical and cover a one day period, the schedule being arranged somewhat as follows:

8:15 A. M.—Registration.

9 A. M. to 1 P. M.—Clinical surgery (diagnosis, management and the application of physiology, biochemistry, and bacteriology, as the case being examined upon may offer an opportunity for doing so. Roentgenographic interpretation will also be included).

2 to 5 P. M.—Applied anatomy and surgical pathology.

The board expects that every candidate shall be well prepared in applied anatomy and in surgical pathology. In the latter subject more stress is laid on an understanding of disease processes and their clinical implications than on the recognition of gross and microscopic lesions.

Examinations in Part II are conducted in certain centers of the country selected by the board. It is the board's desire to arrange these centers so as to geographically meet the needs of the candidates, on condition that suitable examintion facilities can be provided. Examinations in Part II are conducted by members of the board together with selected diplomates of the board.

GRADES

A candidate must receive an average of 75 per cent for each part to be entitled to the board's certificate.

REEXAMINATIONS

Part I. Candidates who fail Part I are required to wait one year before becoming eligible for reexamination.

Part II. Candidates who fail Part II in its entirety and those who fail in the single subject of clinical surgery are required to wait one year before establishing eligibility for reexamination. Those who fail either anatomy or pathology are required to

wait six months. The board expects that during this period the candidate will make a reasonable effort to prepare himself in the subject or subjects in which he has failed.

Should a candidate fail a reexamination in Part I or Part II, further examination privileges will be denied. Appeal for further examination under special circumstances, when satisfactory evidence of further training has been submitted, will be considered by the Examination Committee. The board may, however, for good and sufficient reason, deny a candidate the privilege of further reexamination.

FEES

The fee for the examination is $150, payable as follows: $25 registration fee, $50 for Part I, and $75 for Part II.

Candidates shall be required to pay a fee of $30 for reexamination in Part I and $60 for reexamination in Part II.

This board is a nonprofit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses, to aid in improving existing opportunities for the training of the surgeon. *The members of the board serve without remuneration.*

CERTIFICATE

After meeting the requirements for eligibility and passing the examinations, a certificate attesting to a candidate's qualifications in surgery will be issued by the board, signed by its officers.

The board has discharged its responsibilities by conducting examinations and has issued certificates of qualification to those surgeons who have met certain clearly specified educational requirements and have successfully passed its examinations. In discharging its responsibilities, the primary purpose of the board has been to establish and maintain desirable standards in the education and training of the young surgeon.

The American Board of Surgery has never been concerned with measures that might gain special privileges or recognition for its diplomates in the practice of surgery. *It is neither the intent nor has it been the purpose of the board to define requirements for membership on the staffs of hospitals.* The prime object of the board is to pass judgment on the education and training of broadly competent and responsible surgeons, not who shall or shall not perform surgical operations. The board specifically disclaims interest in or recognition of differential emoluments that may be based on certification.

BOARD OF THORACIC SURGERY

(An Affiliate of the American Board of Surgery)

CAMERON HAIGHT, Chairman, Ann Arbor, Mich.
RICHARD H. SWEET, Vice-Chairman, Boston.
WILLIAM E. ADAMS, Chicago.
THOMAS H. BURFORD, St. Louis.
MICHAEL E. DEBAKEY, Houston, Texas.
JOSEPH W. GALE, Madison, Wis.
GEORGE H. HUMPHREYS, New York.
JULIAN JOHNSON, Philadelphia.
JOHN C. JONES, Los Angeles.
PAUL C. SAMSON, Oakland, Calif.
WILLIAM M. TUTTLE, Secretary-Treasurer, 1151 Taylor Ave., Detroit 2.

FUNCTIONS OF THE BOARD

1. To select Founder Members. For this group surgeons of the United States and Canada were chosen who had made meritorious contributions to thoracic surgery.

The Founders Group was kept open for two years after organization of the board.

It was officially closed April 14, 1951.

2. To conduct examinations of satisfactory candidates who seek certification by the board.

3. To improve the opportunities for the training of thoracic surgeons.

4. To set up principles of education to guide young surgeons who desire to prepare themselves for proficiency in thoracic surgery.

5. To issue certificates of qualification to all those meeting the board's requirements.

REQUIREMENTS

1. Certification by the American Board of Surgery.

2. Two years' training in thoracic surgery approved by the Board of Thoracic Surgery, or meritorious contributions to thoracic surgery. One of these two years may be spent during the four years of training in surgery required by the American Board of Surgery.

3. Written, oral, and practical examination.

DEFINITION OF WHAT IS CONSIDERED ACCEPTABLE TRAINING IN THORACIC SURGERY

To qualify for the examination in thoracic surgery, the candidate shall have had two years of training in an active, well-integrated thoracic surgical clinic or clinics, or the equivalent amount of thoracic surgical training, on a mixed service consisting of thoracic and nonthoracic surgical cases. Adequate training in both the tuberculous and nontuberculous aspects of thoracic surgery is expected. In order to obtain this objective, combined residencies between institutions of different types may be advantageous. It is also required that the candidate be familiar with the basic sciences as related to thoracic surgery. Under exceptional circumstances certain surgeons may, by virtue of recognized proficiency in the surgical treatment of thoracic diseases, qualify for the examination at the discretion of the board.

APPLICATIONS

Prospective candidates desiring to apply for examination should consider whether they are able to meet the minimum requirements of the board. They should then submit a letter to the secretary's office, outlining briefly their training and experience in thoracic surgery and ask for an application form. An application form will not be sent unless evidence is submitted in a letter indicating that the prospective applicant appears to meet the minimum requirements.

EXAMINATIONS

The qualifying examinations are divided into two parts. Part 1 is written, and Part 2 is an oral examination in clinical surgery, roentgenogram interpretation, and pathology.

Part 1.—This examination will be given simultaneously at least once a year in as many centers throughout the country as the board may determine suitable for this purpose.

Part 2.—In order to be eligible for part 2 a candidate must have successfully completed part 1. Examinations in part 2 are conducted in certain centers of the country selected by the board.

REEXAMINATIONS

Those persons who fail part 1 or part 2 will be required to wait one year before they can retake the part which they failed. Those who fail twice will be required to wait for a period of two years. Candidates who are unsuccessful at three attempts will be required to wait three years before requesting reconsideration. The board may at its discretion deny the candidates the privilege of reexamination.

Candidates declared eligible but who fail to exercise the examination privilege within three years of the date of filing the application will be required to file a new and current application and pay a new examination fee. Also a candidate who has failed in an examination (part 1 or part 2) and who does not apply for reexamination within three years shall be required to make a new application and pay a new examination fee.

FEES

For the special examination in thoracic surgery and the issuing of a certificate, the fee will be $100. Fifteen dollars of this fee is to accompany the application and will be considered as a registration fee. It is nonreturnable to the applicant in case he is disapproved for examination.

The fee for reexamination will be $50.

AMERICAN BOARD OF UROLOGY

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A. I. DODSON, Vice-President, Richmond, Va.
GRAYSON CARROLL, St. Louis.
THOMAS D. MOORE, Memphis, Tenn.
RUBIN FLOCKS, Iowa City.
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WM. P. HERBST, Washington, D. C.
HARRY CULVER, Secretary-Treasurer, Chicago.
MRS. RUBY L. GRIGGS, Assistant Secretary, Minneapolis.
Office of the Secretary-Treasurer: 30 Westwood Road, Minneapolis 16.

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ROGER GRAVES, Boston.
GILBERT J. THOMAS, Santa Monica, Calif.
GEORGE F. CAHILL, New York.

APPLICATION BLANK; REQUIREMENTS FOR ALL APPLICANTS

Application for certification must be made on a special form. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials, and by $50 of the examination fee.

Requirements for Applicants.—Each applicant, before he shall become eligible to take the examination for certification in urology, must:

A. Have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association and must have completed an internship of not less than one year in a hospital approved by the same council. (The former requirement is not applicable to a candidate who graduated from an institution now extinct, or whose graduation occurred before the American Medical Association had prepared a list of accredited medical schools.) All graduates of foreign medical schools must obtain a license to practice in the state or province in which they reside, the certificate of the National Board of Medical Examiners and/or the certificate of graduation from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association as capable of providing training comparable with that recognized in a "Class A" medical school.

B. Establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he has received adequate special training in urology.

The board is attempting to increase and to standardize the facilities for urologic training in teaching institutions, so that the expression "special training in urology" may be interpreted to include:

1. A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals, or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of urology.

The training requirements after the internship may be fulfilled in one of the following ways:

(*a*) A three-year residency in urology.

When a resident obtains a senior rating or is in his final year of training, he should be in charge of the examination and treatment (surgical or otherwise), of an ample number of patients under the supervision of the senior consultant or attending urologist who must be a certificatee of the American Board of Urology.

(*b*) A second year of rotating internship or a one-year residency, preferably in general surgery, followed by a two year urologic residency, which should have the same status as the last two years of a three year urologic residency.

(*c*) Preceptorship.

This type of training may be accepted, but it is not encouraged. This, and other variations from training described above, must be supported by evidence that the candidate has had training comparable with one of the two preceding types of residencies.

2. An additional period of not less than two years in the practice of urology in the city from which he makes application.

These special requirements conform with the suggestions made by the Council on Medical Education and Hospitals of the American Medical Association.

After June 30, 1955, training requirements, after the internship, may be fulfilled in one of the following ways:

1. One year general surgery. Three years formal training in urology.

2. Two years of general surgery. Two years formal training in urology.

3. One year of general surgery. One year review of basic sciences or some special research. Two years of formal training in urology.

4. One year general surgery. Two years of formal training in urology. One year of credit for two years in a preceptorship, to be approved by the Credentials Committee and the board.

C. Make application to the American Board of Urology, whose duty it shall be to investigate the applicant's credentials and make a survey of his character.

D. Assure the board that he is engaged in the practice of urology and that he intends to continue to be so engaged.

E. Membership in the American Medical Association or comparable national medical association is recommended.

Any candidate who starts training before June 30, 1955, under the old requirements, may complete the program of the old requirements and thereby become acceptable for examination. No more candidates will be accepted for examination whose training has been entirely on a preceptorship basis started after March 1, 1951.

The required case histories should be prepared in duplicate, according to the instructions below, and the original sent to the board office. The duplicate should be filed in the candidate's office. The second copy will be called for if needed.

FEE

The examination fee is $150. (This fee will be increased when the expense of the examinations and other activities of the board demand.) $50 must accompany the application. If, on investigation, an applicant is found lacking in any of the requirements stated above, he will be notified that he is ineligible for examination. $100 must be paid when the applicant is accepted as a candidate for certification. Neither fee shall be returnable in any event.

If a candidate fails, he will be permitted a second examination after one year or within three years, without additional fee, but he must give 60 days' notice of his intention to appear for reexamination. After an applicant has failed twice, he must file a new application and pay a second fee.

REQUIREMENTS FOR CERTIFICATION

According to the by-laws of the American Board of Urology, applications received from applicants for certification shall be examined by the Credentials Committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary.

The requirements for certification include: preparation of reports of twenty-five representative (not necessarily consecutive) major urological cases from private practice, which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; oral-clinical examinations, written examinations, and personal appearance before the board.

In specific instances, the board may waive any part of these requirements, with the exception of the item of personal appearance.

Each candidate will receive a notice of the time and place of the examinations, and an appointment for his personal appearance before the board.

EXAMINATIONS AND REPORTS OF CASE HISTORIES

The board will hold one examination per year. This may be held in association with the annual meetings of the American Urological Association or the American Medical Association, when this is practicable, or at other times and places that the board may select, or deem expedient.

The written examinations are designed to test the candidate's preparation in, and his knowledge of, the whole field of urology, including the fundamental subjects: pathology, anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology. These may be given at the time of the oral-clinical examination, or may be held on certain dates simultaneously in different parts of the country at places convenient for candidates. The examination in pathology will consist of the identification of gross specimens and of sections of tissue observed through the microscope. The examination in anatomy, physiology, embryology, bacteriology, physiological chemistry, and endocrinology will be a test of the candidate's working knowledge of these subjects as they are related to the practice of urology.

The oral-clinical examination will consist of discussions of common urologic conditions. The subjects forming the basis of this examination are urography; diseases of the genital organs, including the prostate; diseases of the urinary bladder, and diseases of the ureters and kidneys. The examination may deal directly with data found in the reports of case histories that the candidates have submitted. It will ascertain the candidate's familiarity with recent literature, the breadth of his clinical experience, and his general qualifications for practice in the specialty of urology.

The professional adaptability of each candidate will be investigated in an attempt to determine his ethical conduct and his attitude toward his patients and fellow practitioners.

The reports of twenty-five major urologic cases must be representative reports from private practice. The reports must be typewritten on 8½ by 11 paper and in duplicate, but need not be on any special form.

Complete index lists must accompany the reports. If they are obtained from more than one hospital they must be consecutive and a separate index list of each group should be provided. These lists must state the operator's name at the head of each page, the name of the patient, the hospital and admission number, and the dates of operation. Statements from the superintendents of the hospitals attesting that the candidate was the operator *must be included.* With the twenty-five case reports there must also be an index, in consecutive order, of all major and minor urologic surgery done during the last two years of practice. The lists should be filed in the secretary's office for verification purposes.

The data should be placed under proper headings, and the arrangement of these should conform to the sequence of events incidental to the patient's admission to the hospital or clinic, the examinations made and treatment prescribed.

Sufficient data should appear in these so that the examiner will know that a proper history was taken and that a thorough examination, including a complete physical survey, was made.

The board requires that all of the essential points of the history and examination, as well as a complete description of the surgical procedure, shall be given. Emphasis should be placed on the following items: preoperative diagnosis, clinical and pathological diagnosis, laboratory data, including cultures of urine and chemical analysis of calculi; summary of postoperative course with special reference to morbidity, clinical findings at time of discharge from the hospital, and subsequent follow-up reports.

A final short paragraph *must be prepared* for each case. This must include the candidate's interpretation of the history in terms of pathology; the basis for the diagnosis; the facts that determined the treatment prescribed, whether surgical or otherwise; the course of treatment to be pursued following discharge from the hospital or clinic; a critical discussion of the knowledge gained from the proper handling of the case, or from the errors made (if any) in the diagnosis and method of treatment.

Each candidate must assume personal responsibility for the data in his case reports, including autopsy findings and interpretation of urograms.

A candidate must remember that these case reports are documentary evidence of his ability and that the material in them and the manner of presentation are important evidences of his competence as a urologist.

The deadline for the receipt of case histories each year is Sept. 1.

Satisfactory case reports must be submitted before a candidate will be permitted to continue with other parts of his examination. If case reports are pronounced unsatisfactory by more than one examiner, the candidate will be informed of this and requested to prepare others.

LIMITATIONS OF FUNCTIONS OF THE BOARD

The conferring of degrees, "Doctor of Medicine" or "Bachelor of Medicine" remains with the universities, where it belongs. This board makes no attempt to control the practice of urology by license, or legal regulation and in no way interferes with or limits the professional activities of any duly licensed physician.

Information regarding the Advisory Board for Medical Specialties and the 19 Examining Boards for Medical Specialties, which appears in this issue, and the data included in the Internship and Residency Number, Sept. 25, will be published in the Directory of Approved Internships and Residencies as a separate reprint.

MEDICAL NEWS

CALIFORNIA

Symposium on Heart Disease.—The San Francisco Heart Association will present the 25th annual Postgraduate Symposium on Heart Disease, Oct. 6 to 8, at Larkin Hall in the Civic Auditorium, with the cooperation of the heart associations of Alameda County, Marin County, Monterey County, Santa Clara, and San Mateo County. Among the speakers will be Dr. Viking Olov Bjork, Stockholm, Sweden; Sir Russell C. Brock, London, England; Drs. Pedro Cossio and Manuel Rene Malinow, Buenos Aires, Argentina; Dr. Frederick Horace Smirk, Dunedin, New Zealand; and Dr. Charles T. Dotter, Portland, Ore. Registrations may be made through the San Francisco Heart Association, 604 Mission St., YUkon 2-5753.

Medical Symposiums at Los Angeles.—The division of postgraduate medical education of the University of California at Los Angeles School of Medicine, in cooperation with the Orange County Medical Association, the Riverside County Medical Association, and the San Bernardino County Medical Society, will present the following symposiums in room 1101 of the Social Science and Humanities Building on the Riverside campus of the University of California:

Oct. 6, 9 a.m. to 5 p.m., Peripheral Vascular Diseases.
Oct. 13, 9 a. m. to 5 p. m., Highlights of Clinical Endocrinology.
Oct. 20, 1 p.m. to 9:30 p.m., Problems in Anesthesia.

Offered through the facilities of University Extension, the symposiums are open only to graduates of medical schools approved by the A. M. A. Council on Medical Education and Hospitals. Each day will carry seven hours of credit approval from the California Academy of General Practice, and certificates of completion will be granted on request. Fee for the series of three symposiums is $50; $17.50 for single classes. There will be luncheon and dinner gatherings at the Mission Inn. Information and application blanks may be obtained from Dr. Thomas H. Sternberg, Head, Division of Postgraduate Medical Education, University of California Medical Center, Los Angeles 24 (BRadshaw 26161).

CONNECTICUT

Society News.—Dr. John J. Blasko was recently elected president of the Seminar Corporation for the Connecticut Postgraduate Seminar in Psychiatry and Neurology; Dr. Philip J. Moorad, New Britain, vice-president; Dr. William F. Green, Newtown, secretary; and Dr. Arthur Ebbert Jr., New Haven, treasurer.

Fall Lecture Series.—The program committee of the Hartford Medical Society announces the following series of lectures, which are scheduled from 5 to 8:30 p. m.:

Oct. 4, Ovid O. Meyer, Madison, Wis.: Some Aspects of the Anemias.
Oct. 18, John L. Parks, Washington, D. C.: Lesions of the Vulva.
Nov. 1, Homer W. Smith, Sc.D., New York: Renal Function.
Nov. 15, Harry Gold, New York: Cardiac Arrhythmias: Mechanisms and Method of Treatment.
Dec. 6, T. Duckett Jones, New York: Rheumatic Fever.
Dec. 20, Alfred A. Gellhorn, New York: Chemotherapy of Cancer.
Jan. 3, 1955 (Annual Meeting), Mr. Samuel Ramsay: The Value of a Sense of Humor.
Jan. 17, Charles Lee Buxton, New Haven, Conn.: Common Endocrine Problems in Gynecology.

DELAWARE

State Medical Meeting in Dover.—The Medical Society of Delaware will hold its annual meeting at the Peoples Church Community Hall, Dover, Oct. 11 to 13, under the presidency of Dr. Hewitt W. Smith, Harrington. After "Description of Common Diseases of the Ocular Fundus" by Dr. J. Robert Fox, Dover, "The Chemotherapy of Pulmonary Infections" will be discussed by Dr. William P. Boger, Philadelphia, and "The Acute Abdomen" by Dr. Victor P. Satinsky, Philadelphia. The Medical Society of Delaware will be host at a luncheon for members and guests at 12:30 p. m. The following afternoon program will be presented by physicians from Baltimore:

Importance of Early Diagnosis in Cancer of the Prostate, J. A. Campbell Colston.
Functional Problems of Gynecology, Edmund R. Novak.
Some Essentials in Office Proctology, Samuel McLanahan.
Office Surgery for the General Practitioner, George G. Finney.

At 6:45 p. m. a reception and dinner (subscription) will be held at Maple Dale Country Club, where an address will be delivered at 9 p. m. by U. S. Senator J. Allen Frear Jr.

The Wednesday session will open at 9:30 a. m. with a talk on the American Medical Education Foundation by Dr. Caziville L. Hudiburg, Wilmington, after which "The Preventable Complications of Myocardial Infarction" will be considered by Dr. A. Henry Clagett Jr., Wilmington. "What Price Antimicrobial Therapy" is the topic of a paper by Dr. Harrison F. Flippin, Philadelphia, which will be followed by the presidential address, "The Physician and Public Relations" by Dr. Smith. The Kent County Medical Society will give a 12:30 luncheon for state society members, guests, and the woman's auxiliary, which will meet concurrently. The afternoon will be devoted to a symposium on traffic accidents. The woman's auxiliary has scheduled a luncheon Tuesday at Maple Dale Country Club, at which the guest speaker will be Dr. Ernest B. Howard, Assistant Secretary, American Medical Association, Chicago.

GEORGIA

Society News.—Guest speaker at the meeting of the Georgia Obstetrical and Gynecological Society in the General Oglethorpe Hotel, Savannah, Oct. 2, will be Dr. Ralph A. Reis, Chicago, whose subject will be "Reevaluation of Endocrine Therapy in Obstetrics and Gynecology."

Medical School Celebrates Centennial.—Emory University School of Medicine in Atlanta will observe its 100th anniversary, Oct. 4 and 5. Addresses will be delivered by Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore; Dr. John F. Fulton, professor of physiology and professor of the history of medicine, Yale University School of Medicine, New Haven, Conn.; Dr. Stanhope Bayne-Jones, director of research of the medical department of the U. S. Army; Dr. Cyrus C. Sturgis, professor of medicine, University of Michigan Medical School, Ann Arbor; and Dr. Evarts A. Graham, professor of surgery, Washington University School of Medicine, St. Louis. On Monday there will be a luncheon for alumni, faculty, and all persons attending the morning program; after the medical addresses of the afternoon there will be tours of the medical school and the campus. A reception for almuni at 6 p. m. will precede the medical alumni association banquet. The Centennial Convocation ceremonies are scheduled for 10 a. m. on Tuesday, and luncheon for all persons attending the ceremonies, at noon in the university gymnasium.

ILLINOIS

Psychiatry Lectures in Winnetka.—The North Shore Health Resort, 225 Sheridan Road, Winnetka, invites physicians to attend its fifth annual lecture series, entitled "Treatment in Psychiatry—II." The lectures will be given the first Wednesday of each month, with the exception of October (second Wednesday) and May (moved up one week to the fourth Wednesday in April). Opening the series Oct. 13 will be "The Evaluation of the Patient's Emotional State by the General Practitioner" by Dr. Frederick C. Redlich, professor of psychiatry, Yale University School of Medicine, New Haven, Conn.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Chicago

Cancer Lectures at Northwestern.—Northwestern University Medical School, Chicago, has announced the following changes in the series of cancer lectures that will be given in the auditorium of the Veterans Administration Research Hospital, 333 E. Huron St. (THE JOURNAL, Sept. 25, 1954, page 435). On Oct. 13 Dr. Joseph H. Burchenal, New York, will give a lecture, "Treatment of Leukemia," which was previously scheduled for Oct. 20. On Oct. 20 Dr. Charles B. Huggins, Chicago, will have as his topic "Cancer of the Prostate." Dr. Huggins was previously scheduled to talk on Oct. 13.

Health Officer Needed.—The Civil Service Commission, city of Chicago, will hold an examination Oct. 18 for field health officer (Board of Health), part time, branch III, class M, grade 3 (for original appointment, $2,724-$2,886 a year). A license to practice medicine in the state of Illinois is required. Applicants must be citizens of the United States, at least 21 years of age (veterans not subject to age limitations), and residents of Chicago for at least one year next preceding dates of examinations. Application must be filed with the Civil Service Commission, 208 City Hall, before 4:30 p. m. weekdays (12 noon Saturdays) on or before Oct. 14.

MISSOURI

Hans Selye to Give Memorial Lecture.—At 10 a. m., Oct. 4, Dr. Hans Selye, professor and director, Institute of Experimental Medicine and Surgery, University of Montreal, Canada, will deliver the Edward Holman Skinner Memorial lecture, "Stress and Disease," for the fall clinical conference of the Kansas City Southwest Clinical Society in the Little Theatre, Municipal Auditorium, Kansas City.

Physicians' Orchestra.—Members of the St. Louis Medical Society are welcome to join a newly organized physicians' symphony orchestra. There will be no tryouts, and previous orchestra experience is not required. The first rehearsal of the St. Louis Physicians' Orchestra was held Sept. 21 at the home of Dr. Walter J. Siebert, No. 3 Oakleigh Lane, Ladue, where meetings will be held each third Tuesday at 8 p. m. All interns and residents are cordially invited to participate. For information, call JE 3-9656 or contact Dr. Ben G. Mannis, 462 N. Taylor, St. Louis.

Panel Discussions.—The Jackson County Medical Society has planned the following panel discussions: Oct. 6, The Acute Abdomen, with Dr. Lawrence P. Engel, Kansas City, as moderator and Drs. Willis E. Brown, Little Rock, Ark.; John F. Holt, Ann Arbor, Mich.; Lucian A. Smith, Rochester, Minn.; and Robert M. Zollinger, Columbus, Ohio, as guest participators, and Oct. 7, The Rational Use of Antibiotics, with Dr. Hubert M. Parker, Kansas City, as moderator and as guest participators, Drs. Truman G. Blocker Jr., Galveston, Texas; Willis E. Brown, Little Rock, Ark.; Justin J. Cordonnier, St. Louis; William A. Sodeman, Columbia; Tom D. Spies, Birmingham, Ala.; and Robert M. Zollinger, Columbus, Ohio.

MONTANA

Crippled Children Clinics.—Dr. Paul R. Ensign, Helena, director of the division of child health services, state board of health, announces the following clinics for crippled children, planned by local health or welfare agencies in the counties served:

Billings, Oct. 8, St. Vincent's Hospital: for children from Yellowstone, Golden Valley, Stillwater, Big Horn, Musselshell, Carbon, Wheatland, and Petroleum counties.

Livingston, Oct. 12, Winans School: for children from Park, Meagher, Gallatin, and Sweet Grass counties.

Butte, Oct. 14 and 15, Webster-Garfield School: for children from Silver Bow, Powell, Deer Lodge, Granite, Beaverhead, Madison, and S. Jefferson counties.

Kalispell, Oct. 26, Kalispell General Hospital: for children from Flathead and Lincoln counties.

Polson, Oct. 27, Bank Building: for Lake and Sanders county children.

Great Falls, Nov. 16 and 17, City-County Health Department: for children from Cascade, S. Chouteau, Teton, and Judith Basin counties.

Helena, Dec. 1, Shodair Crippled Children's Hospital: for children from Lewis and Clark, Broadwater, and N. Jefferson counties.

Any child under 21 years of age who is believed to have a crippling condition may be brought to the diagnostic clinics. Children may be referred to the clinics by family physicians, public health nurses, or welfare workers. Referrals by public health nurses and welfare workers are cleared for the clinics through local physicians. A pediatrician and an orthopedist will examine the children in the parents' presence and report to the family physician, the parents, and the local public health nurse.

NEW YORK

Symposium on Blood Transfusions.—The Westchester County Medical Society will be host for the meeting of the Ninth District branch, Oct. 6, at Sleepy Hollow Country Club in Scarborough. A symposium on blood transfusions will be presented at 3:30 p. m., with Dr. Aaron Kellner, New York, president, American Association of Blood Banks, as moderator. Cocktails at 5:30 will precede the dinner, at which Dr. Dan Mellen, Rome, president, Medical Society of the State of New York, will deliver an address and Mr. Dean Arnold will discuss "Human Relations in Industry."

Medical TV Series.—"Medically Speaking," a new series of 13 weekly television programs (10:30 to 11 a. m.) presented over Station WRGB, Albany, began with a telecast, "Protecting Your Child," produced under the guidance of Dr. Paul R. Patterson, chairman of the department of pediatrics at Albany Medical College. The series is sponsored by the Mohawk-Hudson Council on Educational Television. "It's Your Heart" was discussed under technical direction of Dr. John F. Filippone on Sept. 22 and of Dr. Joseph T. Doyle on Sept. 29. Other presentations with their leaders or coordinators will include:

Oct. 6, The Case of the Low Blood Count, Thomas F. Frawley.
Oct. 13, Advances in Surgery, John C. McClintock.
Oct. 20, Modern Anesthesia, J. Gerard Converse.
Oct. 27, Body Structure and Chemistry, Jack M. Wolfe, Ph.D., and Arthur Knudson, Ph.D.
Nov. 3, Fits and Facts, William L. Hold Jr. and Frederick H. Hesser.
Nov. 10, Under the Microscope, Arthur W. Wright.
Nov. 17, The Atom and Your Health, John F. Roach.
Nov. 24, Women's Health, Arthur J. Wallingford.
Dec. 1, The Student-Doctor, Morris Weinstein, M.A.
Dec. 8, Is Medicine for Me, Harold C. Wiggers, Ph.D.

Throughout the entire series of "Medically Speaking," the specialists advising each particular program will be assisted by other physicians in their fields and by nurses, technicians, and students from the Albany Medical Center. Equipment used will be personally supplied by the physicians or will be borrowed from Albany Medical College.

New York City

Symposium on Diabetes.—The clinical society of the New York Diabetes Association will present its second symposium day on diabetes, Oct. 14, at the auditorium, Memorial Center for Cancer and Allied Diseases, 444 E. 68th St. "Vascular Disease in Diabetes Mellitus" is the topic of the symposium. After welcoming remarks by Dr. Frederick W. Williams, retiring chairman of the society, the following presentations will be made before 1:30 luncheon:

Atherosclerotic Lesions in Diabetes, Margaret Bevans, New York.
Morphogeny of the Capillary Vascular Lesions of Diabetes, James I. Berkman, New York.
Normal Serum Lipid Metabolism, Forrest E. Kendall, Ph.D., New York.
Metabolism of the Serum Lipids in Diabetes and in Arteriosclerosis, George V. Mann, Boston.
Capillary Vascular Lesion, Louis Leiter, New York.
Present-Day Concepts of Diabetic Retinopathy, Isadore Givner, New York.

At 2:15 p. m. "Coronary Artery Disease in the Diabetic" will be presented by Dr. Alexander Marble, Boston, after which Dr. Laurance W. Kinsell, Oakland, Calif., will discuss "Prevention of Vascular Disease in the Diabetic." "The Management of the Diabetic with Vascular Disease" by Dr. Henry B. Mulholland, Charlottesville, Va., president of the American Diabetes Association, will precede closing remarks by Dr. Herbert Pollack, president, New York Diabetes Association. At the dinner (7:15 p. m.) at New York Academy of Sciences, 2 E. 63rd St., Ancel B. Keys, Ph.D., director, laboratory of physiological hygiene, University of Minnesota, Minneapolis, will have as his topic "Relative Obesity and the Blood Chemistry in Man."

OHIO

Society News.—The 110th Scientific Assembly of the Northwestern Ohio Medical Association will be held in the Shawhan Hotel, Tiffin, Oct. 6. Interested physicians are invited. The scientific program will include the following presentations:

Management of Prolonged Labor, D. Frank Kaltreider, Baltimore.
Planning of Antibacterial Management with a Consideration of Pitfalls, Paul S. Rhoads, Chicago.
Management of Facial Fractures, Joseph W. Ewing, Akron.
Emergency Care of Head Injuries, Laurence M. Weinberger, Akron.

PENNSYLVANIA

Course in Respiratory Diseases.—The Pennsylvania Trudeau Society, in cooperation with the Laennec Society of Philadelphia, will give a course in respiratory diseases Wednesday afternoons, 2 to 4 p. m., at the College of Physicians, 19 S. 22nd St., Philadelphia, from Oct. 6 to Dec. 8. The tuition will be $35. The following program has been approved for 20 credits by the American Academy of General Practice:

Oct. 6, Office Work-Up of Patients with Pulmonary Problems.
Oct. 13, Diagnosis and Management of Acute Respiratory Infections.
Oct. 20, Diagnosis and Management of Bronchiectasis.
Oct. 27, Diagnosis and Management of Emphysema and Pulmonary Fibrosis.
Nov. 3, Diagnosis and Management of Pulmonary Neoplasm.
Nov. 10, Tuberculosis in Children.
Nov. 17, Treatment of Pulmonary Tuberculosis.
Nov. 24, Unusual Pulmonary Diseases.
Dec. 1, Industrial Problems in Respiratory Disease.
Dec. 8, Chest Conference.

Philadelphia

Symposium on Anthrax.—A symposium on anthrax in man will be held Oct. 8 at the Hospital of the University of Pennsylvania, Philadelphia, under the joint sponsorship of the department of health, commonwealth of Pennsylvania; the department of public health, city of Philadelphia; and the University of Pennsylvania School of Medicine. All interested persons are invited. There will be no registration fee. Information may be obtained from Harry E. Morton, Sc.D., professor of bacteriology, University of Pennsylvania.

TENNESSEE

University News.—Dr. Rudolf D. von Capeller from Riehen, Switzerland, has joined the division of pharmacology of the University of Tennessee Medical Units, Memphis, where he will teach and conduct research in hypertension. Dr. von Capeller recently served as an assistant in the department of pharmacology at his alma mater, the University of Basel.

Course in Cardiac Management.—A course in cardiac arrest, prevention, and management, Oct. 14 and 15, will be directed by Dr. Harwell Wilson, chief of the division of surgery, and Dr. Sam H. Sanders, head of the department of otolaryngology, University of Tennessee College of Medicine, Memphis, and will include demonstrations in the experimental surgery laboratory with class participation. The course will be limited to 20 physicians.

WISCONSIN

State Medical Meeting in Milwaukee.—The annual meeting of the State Medical Society of Wisconsin will be held in Milwaukee Oct. 4 to 6, with scientific programs at the Milwaukee Auditorium. The presidential address will be delivered by Dr. H. Kent Tenney, Madison, at the annual dinner at the Hotel Schroeder, Wednesday, after which the address of the incoming president will be given by Dr. Arthur J. McCarey, Green Bay. The scientific assembly will open Monday, 2:30 p. m., with presentation of the Theresa Rogers Memorial lecture, Rogers Memorial Sanitarium, "What Patients Expect of Their Physicians," by Dr. Leo H. Bartemeier, Detroit, who will also preside at one of the nine round-table luncheons preceding the afternoon session. His luncheon topic will be "Everyday Emotional Problems in Medical Practice." At 3 p. m. Dr. John Adriani, New Orleans, will discuss "Surgical Risks from the Standpoint of Anesthesia," and at 4:15 p. m. Dr. Paul C. Williams, Dallas, Texas, will speak on low back pain. The Tuesday afternoon assembly will hear Dr. Hans Selye, Montreal, Canada, discuss "Recent Progress in the Study of Diseases of Adaption"; Dr. Robert B. Lawson, Miami, Fla., "Treatment in Infancy and Childhood"; Dr. W. Brandon Macomber, Albany, N. Y., "Treatment of Malignancies in the Specialty of Plastic Surgery"; and Dr. Frederick W. Fitz, Chicago, "The Doctor and His Heart." The following program will be presented at the closing scientific assembly, Wednesday afternoon:

John I. Brewer, Chicago: Evaluation of Surgical Procedures in Uterine and Perineal Relaxation.
Charles S. Cameron, New York: Cancer: Research Progress.
Henry Doubilet, New York: Present Status of Surgical Treatment of Duodenal Ulcer.
Thomas J. O'Neill, Philadelphia: Surgery of Heart Disease, Excluding Valvular Defects.

Special interest programs include the following presentations:

Pediatrics (Tuesday): Infectious Croup, Albert J. Schroeder, Minneapolis.
Radiology (Tuesday): Simple Bone Cysts, Aneurysmal Bone Cysts, and Giant Cell Tumors, David G. Pugh, Rochester, Minn.
Anesthesia (Tuesday): Carbon Dioxide Gas Exchange in the Body, Albert Faulconer, Rochester, Minn.
Obstetrics and Gynecology (Wednesday): Uses and Abuses of Oxytocics in Obstetrics, Howard J. Tatum, New Orleans.
Surgery (Wednesday): Use of ACTH and Cortisone in Surgical Patients, William J. Grove, Chicago.
Ophthalmology and Otolaryngology (Wednesday): Retrolental Fibroplasia, Justin M. Donegan, Chicago. Treatment of Painful Neuralgias of the Head, George S. Baker, Rochester, Minn.

On Tuesday at 10:45 a. m. the Lucy Ann Droessel Memorial lecture, Wisconsin Heart Association, "Pain in the Chest," will be delivered by Dr. William B. Bean, Iowa City. Wednesday Dr. Cameron will present "Epidemiologic and Laboratory Evidence of Causes of Lung Cancer," a lecture sponsored by the Milwaukee and Wisconsin divisions of the American Cancer Society as part of the special interest program on cardiac and pulmonary diseases. Daily round-table luncheons will be held at the Hotel Schroeder from 12:45 to 1:30 p. m.

GENERAL

A. M. A. Identification Card Stolen.—Dr. Roland T. Smith, Joplin, Mo., reports the theft of his billfold containing his 1954 A. M. A. identification card, which may be used illegally by some other person.

Clinical Orthopaedic Society.—The Clinical Orthopaedic Society will meet Oct. 7 to 9 at Thorne Hall, Northwestern University Medical School, Chicago, under the presidency of Dr. C. Leslie Mitchell, Detroit. Sixty-three presentations have been scheduled, with discussion periods. A cocktail party at the Sheraton Hotel, 6:30 p. m., will precede the annual dinner.

The Story of Hippocrates on Television.—The ethics of the medical profession will receive a salute over the NBC television network Sunday, Oct. 10, when Hallmark's Hall of Fame presents the story of Hippocrates. Titled "The Immortal Oath," the program will dramatize the life of the early physician, telling how he came to write the code that has served medicine from that day to this. Hallmark's Hall of Fame originates live from New York at 5 p. m. Eastern Standard Time. It will be carried by 45 television stations from coast to coast.

Accident Death Toll.—The National Safety Council announces that for the seventh consecutive month in 1954 the traffic accident death toll showed a decrease from the comparable month in 1953. Although the July death toll was 3,150, the largest total for any month this year, nevertheless it was 3% below the July, 1953, figure. At the end of seven months the death total stood at 19,450, 5% lower than the 20,500 figure for the corresponding period a year ago. No traffic deaths in July were recorded by 374 of the 492 reporting cities, the largest of which was Portland, Ore. (373,600), with St. Paul (311,300) and Oklahoma City (243,500) next in size. For seven months, 138 of the reporting cities maintained perfect records. The three largest were Richmond, Calif. (99,500), Fresno, Calif. (91,700), and East Orange, N. J. (79,300).

Meeting on Nuclear Science.—The Institute of Radio Engineers Professional Group on Nuclear Science will hold its first national annual meeting in Chicago, Oct. 6 and 7, at the Sherman Hotel, the first day's session coinciding with the last day of the National

Electronics Conference. The program will be divided into the following technical sessions of invited and contributed papers: (1) Nuclear Medical Electronics, (2) General Nucleonic Instrumentation, (3) European and American Reactor Technology, and (4) European and American Particle Accelerator Technology. The program Wednesday evening will consist of a cocktail party followed by motion pictures on nuclear weapons tests and other significant documentary films.

Examination for Associate Biostatistician.—The New York State Department of Civil Service will hold an examination for associate biostatisticians Nov. 6. Applications for the examination, which is open to any qualified citizen of the United States, will be accepted up to Oct. 8. The salary is from $6,590 to $8,070. At present there is one vacancy, in the Roswell Park Memorial Institute at Buffalo. Candidates must be college graduates and have 30 graduate semester credit hours in statistics or biostatistics and three years of professional statistical experience, two of them in biostatistics, and must either have two more years of experience or have completed all the requirements for the Ph.D. degree in statistics or biostatistics. An equivalent combination of education and experience may be accepted. Information may be obtained from the Recruitment Office, New York State Department of Civil Service, Albany.

New England Society of Anesthesiologists.—The New England Society of Anesthesiologists will meet at Mary Hitchcock Memorial Hospital, Hanover, N. H., Oct. 8, when the morning will be devoted to a clinical session. The scientific session will begin at 2 p. m. with "Gary—Two Years After" by Dr. Agnes V. Bartlett, Springfield, Vt., who will give a two year follow-up presentation on the patient, who at the age of 3 suffered prolonged hypoxia after having been locked accidentally in an abandoned ice box. At 2:35 p. m. Dr. Bernard R. Fink, New York, will speak on laryngospasm, and at 3:25 p. m. Dr. Morris L. Heller, Hanover, N. H., will discuss "Light Nitrous Oxide Anesthesia for the Poor Risk Patient." At 4:30 p. m. Abbott Laboratories of North Chicago will be host at a cocktail party at the Hanover Inn. After dinner, 5:30 to 7 p. m., Dr. Wesley Bourne, McGill University, Montreal, Canada, guest of honor, will speak.

Annual Tuberculosis Conference.—The 41st annual meeting of the Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Trudeau Society will be held at the Town House, Kansas City, Kan., Oct. 7 to 9. Highlights of the program include "The Shifting Emphasis in Tuberculosis Control," Thursday, by Dr. William B. Tucker, chief, pulmonary disease service, Veterans Administration Research Hospital, Chicago; a session on home treatment of tuberculosis, Friday, in which participants will be Drs. James J. Waring of Denver, Joseph B. Stocklen of Cleveland, Paul T. Chapman of Detroit, and Julius L. Wilson of Philadelphia; a panel on pulmonary emphysema, Friday, with Dr. Oscar A. Sander, Milwaukee, as moderator; "Not Me, Judge," a mock trial of a "recalcitrant patient" with Judge James F. Bell, London, Ohio, presiding over this public health session on Saturday; and, simultaneously, a conference on differential diagnosis of chest diseases at the University of Kansas Medical Center.

Meeting on Muscular Dystrophy.—The third medical conference of the Muscular Dystrophy Associations of America will be held Oct. 8 and 9 at the New Yorker Hotel in New York City. The following symposiums have been scheduled:

Advances in Basic Muscle Chemistry, Physiology and Pharmacology (chairman, Wallace O. Fenn, Ph.D., Rochester, N. Y.).
Clinical Management of Patients (chairman, John B. Griggs, Newington, Conn.).
Contracture of Muscle (chairman, Herbert S. Gasser, New York).
Degeneration, Regeneration and Growth of Muscle (chairman, Derek E. Denny-Brown, Boston).
M.D.A.A. Chapters and the Patient Service Program (chairman, Dr. Arthur S. Abramson, New York).
Recent Advances in Knowledge of Metabolic Alterations in Muscular Dystrophy (chairman, Ralph W. Gerard, Chicago).

At a luncheon for professional registrants Friday, 12:30 p. m., the speaker will be Joseph C. Hinsey, Ph.D., director, New York Hospital-Cornell Medical Center. At 4:45 p. m. motion pictures will be shown in the North Ballroom.

Meeting of Medical Record Librarians.—The American Association of Medical Record Librarians will hold its annual conference Oct. 4 to 8 at the Sheraton-Cadillac Hotel, Detroit. Wednesday morning "Advances in Medicine" will be presented by the following physicians:

Grosvenor W. Bissell, Buffalo: Latest Trends in Hormone Therapy.
Forest D. Dodrill, Detroit: The Mechanical Heart.
Albert H. Holland Jr., Washington, D. C.: Drugs, Records, and You.

On Thursday at 9 a. m. "Standard Nomenclature for Registered Medical Record Librarians" will be considered by Adaline C. Hayden, R.R.L., associate editor, Standard Nomenclature of Diseases and Operations, A. M. A., Chicago. Thursday afternoon Dr. Crofford O. Vermillion, St. Louis, will talk on medical records machine methods. Friday morning will be devoted to a report on hospital accreditation from the Joint Commission on Accreditation of Hospitals by Dr. Kenneth B. Babcock, Chicago, and from the hospital administrator by Mr. Franklin D. Carr, Detroit. Drs. Roger B. Nelson, Ann Arbor, Mich., and Malcolm T. MacEachern, Chicago, are scheduled to participate in the conference.

Meeting on Psychosomatic Medicine.—The Academy of Psychosomatic Medicine will hold its first annual meeting at the Hotel Plaza, New York, Oct. 8 and 9. Dr. William Kaufman, Bridgeport, Conn., president, will open the sessions with "The Physician's Role in the Preparation for Surgery," after which the psychosomatic aspects of anesthesia will be presented by Dr. Emery A. Rovenstine, New York; of cardiovascular surgery by Dr. Louis Faugeres Bishop, New York (medical aspects) and Dr. Houck E. Bolton, Philadelphia (surgical aspects); and of obstetrics and gynecology by Dr. William S. Kroger, Chicago. Dr. Alfred J. Cantor, Flushing, N. Y., will discuss "General Semantics of Anorectal and Colon Surgery," after which psychosomatic aspects will be further considered by the following speakers from New York City: Drs. I. Melbourne Greenberg (neurosurgery); Lester L. Coleman (otolaryngology); Jacob A. Salzmann, D.D.S. (orthodontics and cleft palate); and Arthur Joseph Barsky (mutilation operations). Psychiatric summation will be presented by Dr. Arthur N. Foxe, New York. After a talk on planning for the future by Dr. Kaufman, there will be round-table discussion of the psychosomatic problems brought up at the conference.

Health Officers Visit Latin America.—Dr. M. G. Candau of Geneva, Switzerland, director-general, World Health Organization, and Dr. Fred L. Soper, director, Pan American Sanitary Bureau, WHO regional office for the Western Hemisphere, left Washington Sept. 5 on a trip through Latin America. They will together pay their respects to the ministers of foreign affairs in the various countries and will discuss with the health ministers problems of mutual interest concerning the programs of WHO and the PASB. They will visit Cuba, Mexico, Guatemala, Colombia, Peru, Brazil, Uruguay, Argentina, and Chile, where they will attend the inauguration of the 14th Pan American Sanitary Conference in Santiago, Oct. 7. Dr. Candau will return to the United States to address the annual meeting of the National Citizens Committee for WHO, Oct. 11, in Buffalo, where he will also attend the annual meeting of the American Public Health Association. The visit of Drs. Soper and Candau to Guatemala, Oct. 10, will coincide with the inauguration of the new building of the Institute of Nutrition of Central America and Panama (INCAP), an institution sponsored by the Pan American Sanitary Bureau. The construction of INCAP's new building has just been completed by the government of Guatemala, one of the institute's six member states. The bureau's zone offices, located in Mexico; Guatemala; Lima, Peru; Rio de Janeiro, Brazil; and Buenos Aires, Argentina, will be visited in the course of the trip.

Meeting of Obstetricians and Gynecologists.—The 22nd annual meeting of the Central Association of Obstetricians and Gynecologists will be held at the Hotel Jefferson, St. Louis, Oct. 7 to 9. The guest speaker, Dr. Nicholson J. Eastman, obstetrician-in-chief, Johns Hopkins Hospital, Baltimore, will present "The Etiology of Cerebral Palsy," after which he will lead the discussion period on cephalopelvic disproportion and Dr. William

J. Dieckmann, Chicago, the discussion period on the place for operative obstetrics. Breech presentation will be considered by Dr. Leroy A. Calkins, Kansas City, Kan., and a report of a 21 year study at the Lewis Maternity Memorial Hospital in Chicago will be made by Dr. Herbert E. Schmitz of that city. Other presentations will include:

Rupture of the Marginal Sinus, James Henry Ferguson, New Orleans.
Further Experiences with Direct Sky Blue in the In Vivo Study of Gynecic Lymphatics, Eduard Eichner, Cleveland.
A Bead Packing Technique for the Application of Uniform Doses of Irradiation to the Endometrial Cavity: An Experimental Approach, Charles H. Hendricks, Cleveland.
Pheochromocytoma Complicated by Pregnancy, J. William Peelen, Kalamazoo, Mich.
Adrenogenital Virilism with Adrenal Cortical Hypofunction: A Clinical Entity, James E. Keeler, Kansas City, Mo.
The Repeat Cesarean Section, John R. Wolff, Chicago.
Studies on Fetal Membranes: II. Microscopic Anatomy, David N. Danforth, Evanston, Ill.
Use of Cortisone in Prevention of Erythroblastosis in Rh-Sensitized Mothers, Isadore Dyer, New Orleans.
Routine Exploration of the Uterus, Robert J. Hawkins, Chicago.

Wanted for Post Office Robbery.—The Post Office Department has requested THE JOURNAL to publish an item concerning one George Edward Payne, alias Ed Brown, alias George Brown, who is wanted for the robbery of a post office station in Indianapolis on Dec. 23, 1951, during which robbery Payne is said to have shot the post office clerk, wounding him seriously. Payne is 28 years old, white, and 5 ft. 11 in. tall, weighs about 170 lb.,

has dark brown eyes, and is soft-spoken. On his inner forearm is a tattoo of a girl's head, and on the outer forearm are the letters "JOE." There is a blue tattoo of "13" at the base of his thumb and a blue tattoo of a bird on the upper forearm with letters "PAT" inset. Payne is said to be suffering from some kidney or lung ailment that requires him to visit a physician at least once a month. Any physician who contacts this man should report at once to Post Office Inspector in Charge, Cincinnati 1, Ohio. Phone (collect) CHerry 5820, Ext. 406.

Anesthetists Meet in Los Angeles.—The 29th Congress of Anesthetists, the annual meeting of the members of the International Anesthesia Research Society, will convene at the Ambassador Hotel, Los Angeles, Oct. 11 to 14. At 10:30 a. m. Monday there will be a panel on teaching of anesthesiology and at 2 p. m. a panel on acute and chronic poliomyelitis. A tour of the Respiratory Center for Poliomyelitis, Rancho Los Amigos, has been planned for Tuesday afternoon. A color motion picture, "Anesthesia in Adult Tonsillectomy Using Sodium Pentothal," by Dr. Fordyce A. Johnson, Pasadena, Calif., will be shown Wednesday at 10:45 a. m.; slides on exchange transfusion by Dr. Louis K. Diamond, Boston, at 3:30 p. m.; and a motion picture, "Newer Concepts of Infant Resuscitation," by Dr. Roy F. Goddard, Albuquerque, N. Mex., Thursday at 11:15 a. m. At 2:30 p. m. Angus J. Smith, London, England, will present "Hibernation Anesthesia in Major Surgery," after which John G. Fairer, London, will discuss "Role of Hibernation Anesthesia in the Prevention and Treatment of Surgical Shock."

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Sept. 4, 1954		Sept. 5, 1953, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	2	6	22
New Hampshire	..	6	1
Vermont	5	7	7
Massachusetts	10	72	40
Rhode Island	..	16	22
Connecticut	6	22	32
Middle Atlantic States			
New York	37	111	196
New Jersey	31	48	68
Pennsylvania	..	83	78
East North Central States			
Ohio	36	165	178
Indiana	12	35	36
Illinois	58	140	165
Michigan	47	117	159
Wisconsin	6	32	56
West North Central States			
Minnesota	14	54	188
Iowa	40	115	30
Missouri	24	46	85
North Dakota	..	8	14
South Dakota	1	5	8
Nebraska	18	38	9
Kansas	3	43	35
South Atlantic States			
Delaware	3	3	1
Maryland	9	18	39
District of Columbia	1	2	5
Virginia	17	30	32
West Virginia	10	27	31
North Carolina	16	39	30
South Carolina	12	18	8
Georgia	16	38	14
Florida	18	56	26
East South Central States			
Kentucky	..	55	20
Tennessee	4	30	25
Alabama	8	17	8
Mississippi	5	17	8
West South Central States			
Arkansas	10	19	17
Louisiana	16	22	24
Oklahoma	1	16	22
Texas	53	129	62
Mountain States			
Montana	3	7	19
Idaho	..	7	2
Wyoming	4	11	4
Colorado	14	27	8
New Mexico	3	14	5
Arizona	2	9	37
Utah	..	7	19
Nevada	..	8	..
Pacific States			
Washington	12	26	30
Oregon	7	16	26
California	122	268	183
Territories and Possessions			
Alaska	4	17	1
Hawaii	2	5	1
Puerto Rico	..	..	..
Total	722	2,117	2,136

CANADA

Life Insurance Medical Directors.—The Association of Life Insurance Medical Directors of America will hold its 63rd annual meeting at the Royal York Hotel, Toronto, Canada, Oct. 12 to 14. Wednesday afternoon a symposium, "Coronary Artery Disease," will be given by Drs. J. Keith Gordon and Edward S. Mills, Montreal, and Clifton L. Reeder, Chicago. Other presentations include:

The Present Medical Situation, Ray F. Farquharson, Toronto.
Differentiation and Assessment of Basal Systolic Murmurs, John H. Halliday, Sydney, Australia.
Radioactive Isotopes and Insurability, John P. Gemmell, Winnipeg.
Insurability After Chest Surgery, Robert M. Janes, Toronto.
Advances in the Study of Stress, Hans Selye, Montreal.
A New Technique for Identifying Reducing Substances in the Urine: Paper Chromatography, Donald H. Woodhouse and Guy E. Joron, Montreal.
Neurosurgery Today and Tomorrow, E. Henry Botterell, Toronto.
Cancer Mortality, Neil E. McKinnon, Toronto.

CORRECTION

Desensitization to Wasp Sting.—In the query by this title in THE JOURNAL, Aug. 28, 1954, page 1621, in the 11th line of the answer, the word histamine should have been antihistamine.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1954 Clinical Meeting, Miami Florida, Nov. 29-Dec. 2.
1955 Annual Meeting, Atlantic City, N. J., June 6-10.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.
1956 Annual Meeting, Chicago, June 11-15.
1956 Clinical Meeting, Seattle, Nov. 27-30.

ACADEMY OF PSYCHOSOMATIC MEDICINE, New York, Oct. 8-9. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

AMERICAN ACADEMY FOR CEREBRAL PALSY, Williamsburg Inn, Williamsburg, Va., Nov 4-6. Dr. Harry E. Barnett, 116 South Michigan Blvd., Chicago 3, Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago, Oct. 4-7. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Jung Hotel, New Orleans, Nov. 12-14. Dr. Arthur H. Griep, 420 Cherry St., Evansville, Ind., Secretary.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Sheraton-Cadillac Hotel, Detroit, Oct. 4-8. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Hotel Claridge, Atlantic City, N. J., Nov. 11-13. Dr. James K. Stack, 700 North Michigan Blvd., Chicago 11, Secretary.

AMERICAN CANCER SOCIETY, Hotel Roosevelt, New York, Oct. 17-24. Dr. Charles S. Cameron, 47 Beaver St., New York 4, Medical Director.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, Lake Placid Club, Lake Placid, N. Y., Oct. 14-16. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

AMERICAN COLLEGE OF CARDIOLOGY, Interim Meeting, Algiers Hotel, Miami Beach, Florida, Nov. 11-13. Dr. Philip Reichert, 140 West 57th St., New York 19, Secretary.

AMERICAN COLLEGE OF GASTROENTEROLOGY, The Shoreham, Washington, D. C., Oct. 25-30. Dr. A. Xerxes Rossien, 33 West 60th St., New York 23, Secretary.

AMERICAN COLLEGE OF SURGEONS, Convention Hall, Atlantic City, N. J., Nov. 14-19. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

AMERICAN DENTAL ASSOCIATION, Miami, Fla., Nov. 8-11. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

AMERICAN FRACTURE ASSOCIATION, Shamrock Hotel, Houston, Texas, Oct. 11-14. Dr. H. W. Wellmerling, 626 Griesheim Bldg., Bloomington, Ill., Secretary-General.

AMERICAN PUBLIC HEALTH ASSOCIATION, Memorial Auditorium, Buffalo, N. Y., Oct. 11-15. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Netherland-Plaza Hotel, Cincinnati, Oct. 25-30. Dr. J. Earl Remlinger Jr., 188 West Randolph St., Chicago 1, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF ARTERIOSCLEROSIS, Sheraton Hotel, Chicago, Oct. 31-Nov. 1. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Hotel Peabody, Memphis, Tenn., Nov. 4-6. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Univ. of North Carolina, Chapel Hill, N. C., Secretary.

AMERICAN THERAPEUTIC SOCIETY, The Chase Hotel, St. Louis, Nov. 4-7. Dr. Oscar B. Hunter, 915 Nineteenth St. N. W., Washington, D. C., Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, French Lick Springs Hotel, French Lick, Ind., Oct. 17-20. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Royal York Hotel, Toronto, Canada, Oct. 12-14. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

CALIFORNIA ACADEMY OF GENERAL PRACTICE, Statler Hotel, Los Angeles, Oct. 24-27. Mr. Wm. W. Rogers, 461 Market St., San Francisco 5, Executive Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Hotel Jefferson, St. Louis, Oct. 7-9. Dr. Harold L. Gainey, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Oct. 29-30. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

CLINICAL ORTHOPAEDIC SOCIETY, Sheraton Hotel, Chicago, Oct. 7-9. Dr. John H. Moe, 825 Nicollet Ave., Minneapolis, Secretary.

CONGRESS OF NEUROLOGICAL SURGEONS, The Waldorf-Astoria, New York, Nov. 4-6. Dr. Bland W. Cannon, 1092 Madison Ave., Memphis, Tenn., Secretary.

DELAWARE, MEDICAL SOCIETY OF, DOVER, Oct. 11-13. Dr. Norman L. Cannon, 1208 Delaware Ave., Wilmington, Executive Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, Hotel Shoreham, Washington, D. C., Nov. 1-3. Mr. Theodore Wiprud, 1718 M St. N. W., Washington, D. C., Secretary.

GULF COAST CLINICAL SOCIETY, Edgewater Park, Miss., Oct. 21-22. Dr. F. C. Minkler, Pascagoula, Miss., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, Murat Temple, Indianapolis, Oct. 26-28. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

INTERSTATE POST GRADUATE MEDICAL ASSSOCIATION OF NORTH AMERICA, Municipal Auditorium, Minneapolis, Nov. 1-4. Dr. Erwin R. Schmidt, 1300 University Ave., Madison 6, Wis., Secretary.

INTER-SOCIETY CYTOLOGY COUNCIL, Statler Hotel, Boston, Nov. 12-13. Dr. John B. Graham, 32 Fruit St., Boston, Chairman, Program Committee.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Kansas City, Mo., Oct. 4-7. Dr. Ira C. Layton, 306 E. Twelfth St., Kansas City 6E, Mo., Secretary.

MICHIGAN STATE MEDICAL SOCIETY, Sheraton-Cadillac Hotel, Detroit, Sept. 29-Oct. 1. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

MIDWESTERN SECTION OF AMERICAN FEDERATION FOR CLINICAL RESEARCH, Thorne Hall Auditorium, Northwestern University Medical Campus, Chicago, Oct. 28. Dr. R. L. Grissom, Univ. of Nebraska College of Medicine, Dept. of Internal Medicine, Omaha 5, Secretary.

NATIONAL ASSOCIATION FOR MENTAL HEALTH, Hotel Statler, New York, Oct. 23-25. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Executive Director.

NATIONAL PROCTOLOGIC ASSOCIATION, Maryland Hotel, Chicago, Oct. 7-9, Dr. George E. Mueller, 59 E. Madison St., Chicago 2, Executive Secretary.

NATIONAL REHABILITATION ASSOCIATION, Baltimore, Oct. 24-27. Mr. E. B. Whitten, 514-16 Arlington Bldg., 1025 Vermont Ave., N.W., Washington, D. C., Executive Director.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, Statler Hotel, Boston, Nov. 3-5. Mr. Lawrence J. Linck, 11 South LaSalle St., Chicago 3, Executive Director.

NEW HAMPSHIRE MEDICAL SOCIETY, Mt. Washington Hotel, Bretton Woods, Oct. 3-5. Dr. W. H. Butterfield, 18 School St., Concord, Secretary.

OKLAHOMA CITY CLINICAL SOCIETY CONFERENCE, Oklahoma City, Oct. 25-28. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

OMAHA MID-WEST CLINICAL SOCIETY, Paxton Hotel, Omaha, Oct. 25-28. Dr. Louis E. Moon, 1031 Medical Arts Bldg., Omaha 2, Secretary.

OREGON STATE MEDICAL SOCIETY, Heathman Hotel, Portland, Oct. 13-16. Dr. Charles E. Littlehales, 1115 S. W. Taylor St., Portland 5, Executive Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, Bellevue-Stratford Hotel, Philadelphia, Oct. 17-22. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

POST-GRADUATE CLINIC, Michigan Academy of General Practice, Sheraton-Cadillac Hotel, Detroit, Nov. 10-11. Dr. F. P. Rhoades, 970 Maccabees Bldg., Detroit 2, Chairman.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

Midwest, Indianapolis, Claypool Hotel, Oct. 9. Dr. Wendell A. Shullenberger, 3470 Central Ave., Indianapolis, Chairman.

New England, Hartford, Conn., Oct. 22. Dr. John C. Leonard, 80 Seymour St., Hartford, Conn., Chairman.

New Jersey, Newark, Nov. 3. Dr. Edward C. Klein Jr., 6 South Kingman Rd., South Orange, N. J., Governor.

Southeastern, Edgewater Gulf Hotel, Edgewater Park, Miss., Oct. 15-16. Dr. E. Dice Lineberry, 1529 N. 25th St., Birmingham 4, Ala., Governor.

Western New York, Syracuse, Nov. 19. Dr. Edward C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

Western Pennsylvania, Pittsburgh, Oct. 27. Dr. Roy R. Snowden, 3509 Fifth Ave., Pittsburgh 13, Chairman.

SOUTHERN MEDICAL ASSOCIATION, St. Louis, Nov. 8-11. Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secretary.

SOUTHERN SOCIETY OF CANCER CYTOLOGY, St. Louis, Nov. 8-11. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION, Hotel Paso del Norte, El Paso, Texas, Nov. 17-19. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

VERMONT STATE MEDICAL SOCIETY, Mt. Washington Hotel, Bretton Woods, N. H., Oct. 3-5. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

VIRGINIA, MEDICAL SOCIETY OF, Shoreham Hotel, Washington, D. C., Oct. 31-Nov. 3. Mr. Robert I. Howard, 1105 W. Franklin St., Richmond, Executive Secretary.

WISCONSIN, STATE MEDICAL SOCIETY OF, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 E. Gorham St., Madison 3, Secretary.

FOREIGN AND INTERNATIONAL

COMMONWEALTH HEALTH AND TUBERCULOSIS CONFERENCE, Royal Festival Hall, London, England, June 21-25, 1955. Mr. J. H. Harley Williams, Tavistock House North, Tavistock Square, London, W.C.1, England, Secretary General.

CONFERENCE OF THE SOLVAY INSTITUTE OF SOCIOLOGY, Universiti Libre de Bruxelles, Brussels, Belgium, Oct. 18-23, 1954. For information write: Assistant to the Secretary, A. Dorsinfang Smets, Solvay Institute of Sociology, Parc Leopold, Brussels 4, Belgium.

CONGRESS OF INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY, London, England, July 18-23, 1955. Dr. C. B. Frisby, National Institute of Industrial Psychology, 14 Welbeck St., London, W.1, England, President.

CONGRESS OF THE INTERNATIONAL DIABETES FEDERATION, Cambridge, England, July 4-8, 1955. Mr. James G. L. Jackson, 152 Harley St., London, W.1, England, Executive Secretary General.

HEALTH CONGRESS OF THE ROYAL SANITARY INSTITUTE, Bournemouth, England, April 26-29, 1955. Mr. P. Arthur Wells, Royal Sanitary Institute, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTER-AMERICAN CONGRESS OF RADIOLOGY, Shoreham Hotel, Washington, D. C., U. S. A., April 24-29, 1955. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia 4, Pa., U. S. A., Secretary-General.

INTER-AMERICAN SESSION, AMERICAN COLLEGE OF SURGEONS, Universidad Mayor de San Marcos de Lima, Lima, Peru, S. A., Jan. 11-14, 1955. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

INTERNATIONAL ANATOMICAL CONGRESS, Paris, France, July 25-30, 1955. Prof. Gaston Cordier, 45, rue des Saints-Pères, Paris 6e, France, Secretary-General.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Ambassador Hotel, Los Angeles, Calif., U. S. A., Oct. 10-14, 1954. For information write: Dr. T. H. Seldon, 102-110 Second Avenue S. W., Rochester, Minn., U. S. A.

INTERNATIONAL CONGRESS OF BIOCHEMISTRY, Brussels, Belgium, Aug. 1-6, 1955. Prof. C. Liebecq, 17 Place Delcour, Liege, Belgium, Secretary-General.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY, Lausanne, Switzerland, May 26-31, 1955. Professor Hauduroy, 19 rue Cesar Roux, Lausanne, Switzerland, Secretary-General.

INTERNATIONAL CONGRESS ON DISEASES OF THE CHEST, Barcelona, Spain, Oct. 4-8, 1954. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Ill., U. S. A., Executive Secretary.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Luxemburg, Luxemburg, Nov. 7-12, 1954. Colonel A. R. Vernengo, Direcion General de Sanidad Militar, Pozos 2045, Buenos Aires, Argentina, S. A., Secretary-General.

INTERNATIONAL CONGRESS OF PLASTIC SURGERY, Stockholm, Sweden, Aug. 1-4, 1955, and Uppsala, Sweden, Aug. 5, 1955. Dr. Tord Skoog, Uppsala, Sweden, General Secretary.

INTERNATIONAL HOSPITAL CONGRESS, Lucerne, Switzerland, May 30-June 3, 1955. Capt. J. E. Stone, International Hospital Federation, 10 Old Jewry, London, E.C.2, England, Hon. Secretary.

INTERNATIONAL SURGICAL CONGRESS, Geneva, Switzerland, May 23-26, 1955. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

JAPAN MEDICAL CONGRESS, Kyoto University and Kyoto Prefectural Medical College, Kyoto, Japan, April 1-5, 1955. Dr. Mitsuharu Goto, University Hospital, Medical Faculty of Kyoto University, Kyoto, Japan, Secretary-General.

LATIN AMERICAN CONGRESS OF PHYSICAL MEDICINE, Lima, Peru, S. A., Feb. 14-19, 1955. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, N. Y., U. S. A., Executive Director.

PAN-AMERICAN ACADEMY OF GENERAL PRACTICE, Lima, Peru, S. A., Feb. 11-25, 1955. Dr. Arturo Martinez, 54 East 72nd St., New York 21, N. Y., U. S. A., Secretary.

PAN AMERICAN HOMEOPATHIC MEDICAL CONGRESS, Hotel Gloria, Rio de Janeiro, Brazil, S. A., Oct. 2-13, 1954. Dr. Paul S. Schantz, 103 West Main St., Ephrata, Pa., U. S. A., Executive Secretary.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, Hawaii, Oct. 7-18, 1954. Dr. F. J. Pinkerton, Suite 7, Young Bldg., Honolulu 13, Hawaii, Director General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ARIZONA:* *Examination and Reciprocity.* Phoenix, Oct. 13-15, Jan. 12-14, 1955, and April 13-15, 1955. Ex. Sec., Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

ARKANSAS:* *Examination.* Little Rock, Nov. 4-5. Sec., Dr. Joe Verser, Harrisburg.

CALIFORNIA: *Written.* Sacramento, Oct. 18-21. *Oral.* Los Angeles, Nov. 20. *Oral and Clinical Examination for Foreign Medical School Graduates.* Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

COLORADO:* *Reciprocity.* Denver, Oct. 13. *Examination.* Denver, Dec. 7-8. Exec. Sec., Mrs. B. H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT:* *Examination.* Hartford, Nov. 9-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven.

DELAWARE: *Examination and Reciprocity.* Dover, Jan. 11-13, 1955. Sec., Dr. J. S. McDaniel, 229 So. State St., Dover.

DISTRICT OF COLUMBIA:* *Examination.* Washington, Nov. 8-9. Deputy Director, Mr. Paul Foley, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington.

IDAHO: *Examination and Endorsement.* Boise, Jan. 10-12, 1955. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

ILLINOIS: *Examination and Reciprocity.* Chicago, Oct. 5-7. Supt. of Registration, Mr. Frederic B. Selcke, Capitol Bldg., Springfield.

IOWA:* *Examination.* Des Moines, Dec. 6-8. Exec. Sec., Mr. Ronald V. Saf, New State Office Bldg., Des Moines 19.

KANSAS: *Examination and Reciprocity.* Topeka, Dec. 8-9. Sec., Dr. O. W. Davidson, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, Dec. 6-8. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

MAINE: *Examination and Endorsement.* Portland, Nov. 9-10. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: *Examination.* Boston, Jan. 18-21, 1955. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston.

MICHIGAN:* *Examination.* Lansing, Oct. 13-15. Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing.

MINNESOTA:* *Examination and Reciprocity.* Minneapolis, Oct. 19-21. Sec., Dr. E. M. Jones, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. Whitfield, Old Capitol, Jackson 113.

MONTANA: *Examination and Reciprocity.* Helena, Oct. 4. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

NEBRASKA:* *Examination.* Omaha, June, 1955. Director, Bureau of Examining Boards, Mr. Husted K. Watson, State Capitol Bldg., Room 1009, Lincoln 9.

NEVADA:* *Examination and Endorsement.* Reno, Oct. 5. Sec., Dr. G. H. Ross, 112 Curry St., Carson City.

NEW JERSEY: *Examination.* Trenton, Oct. 19-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Oct. 11-12. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NORTH CAROLINA: *Endorsement.* Rocky Mount, Oct. 4. Sec., Dr. Joseph J. Combs, Professional Building, Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, Jan. 5-8, 1955. *Reciprocity.* Grand Forks, Jan. 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, Dec. 13-15. *Reciprocity.* Columbus, Oct. 4. Sec., Dr. H. M. Platter, Wyandotte Bldg., Columbus 15.

OREGON:* *Examination and Reciprocity.* Portland, Oct. 14-16. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Building, Portland 4.

RHODE ISLAND:* *Examination.* Providence, Oct. 7-8. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination and Reciprocity.* Columbia, Nov. 8. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

TEXAS:* *Examination and Reciprocity.* Fort Worth, Dec. 2-4. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

UTAH: *Reciprocity.* Salt Lake City, Nov. 16. Director, Department of Registration, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, Dec. 9-11. *Reciprocity.* Richmond, Dec. 8. Address: Board of Medical Examiners, 631 First St., S.W., Roanoke.

WEST VIRGINIA: *Examination.* Charleston, Oct. 11. Sec., Dr. Newman H. Dyer, State Office Bldg. No. 3, Charleston 5.

WISCONSIN:* *Reciprocity.* Madison, Oct. 15. Sec., Dr. Thomas W. Tormey, Room 1140, State Office Bldg., Madison 2.

WYOMING: *Examination and Reciprocity.* Cheyenne, Oct. 4. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. Benedict Cooper, Agana.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARKANSAS: *Examination.* Little Rock, Oct. 5-6. Sec., Dr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 18-19. Deputy Director, Department of Occupations and Professions, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington.

FLORIDA: *Examination.* Gainesville, Nov. 6. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Oct. 8-9. Sec., Mrs. Anne Baker, Mason Bldg., Lansing 2.

NEBRASKA: *Examination.* Omaha, Oct. 5-6. Director, Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

NEVADA: *Examination.* Reno, Oct. 5. Sec., Dr. Donald G. Cooney, Box 9005, University of Nevada, Reno.

NEW MEXICO: *Examination.* Santa Fe, Oct. 17. Sec., Mrs. Marguerite Cantrell, P. O. Box 1522, Santa Fe.

OKLAHOMA: Oklahoma City, April 8-9, 1955. Sec., Dr. C. Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. 4. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Nov. 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE: *Examination.* Memphis, Sept. 20-21. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

TEXAS: *Examination.* Austin, Oct. 22-23. Address, Mrs. Betty Ratcliff, Chief Clerk, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: *Examination.* Milwaukee, Dec. 4. Sec., Mr. W. H. Barber, 621 Ransom St., Ripon.

*Basic Science Certificate required.

DEATHS

Harrison, Roy Bertrand ⊕ New Orleans; born in Boyce, La., in 1891; Medical Department of Tulane University of Louisiana, New Orleans, 1912; after serving an internship at Charity Hospital, began the practice of surgery in New Orleans; from 1912 to 1925 instructor in surgery at his alma mater, and then from 1931 to 1935 served as professor of clinical surgery at Louisiana State University School of Medicine; a member of the Advisory Council on Medical Education of the American Medical Association; past president of the Louisiana State Medical Society, which in July of this year presented him with a plaque in recognition of his distinguished services to medicine and the medical profession over a period of 42 years; appointed a member and secretary-treasurer of the Louisiana State Board of Medical Examiners in 1921 and served continuously until 1953, when he was named honorary secretary, completing one of the longest periods of service on record; past president and vice-president of the Federation of State Medical Boards of the United States; from 1942 to 1953 member of the National Board of Medical Examiners, serving as a member of its executive board since 1946; fellow of the American College of Surgeons; founder of the Surgical Association of Louisiana, of which he was the first president in 1947-1948; commander in the Medical Corps of the U. S. Navy during World War I; member of the founders' group of the American Board of Surgery; senior visiting surgeon at the old Presbyterian Hospital from 1912 to 1918 and associate staff surgeon from 1918 to 1924; since the formation of Southern Baptist Hospital in 1927, was senior member of the hospital staff, serving as president of the staff in 1934 and 1935; died July 25, aged 62, of nephritis.

McAlester, Andrew Walker ⊕ Kansas City, Mo.; born in Columbia Feb. 19, 1876; University of Missouri School of Medicine, Columbia, 1905; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1910, 1912, 1913, 1915, and 1922; at one time secretary of the Missouri State Medical Association; served in France during World War I; formerly professor of ophthalmology at the University of Kansas School of Medicine, Kansas City, Kan.; on the staff of the Menorah Hospital; consultant at the Kansas City General Hospital; oculist at St. Luke's and Research hospitals; oculist for the Chicago, Burlington and Quincy Railroad; died Aug. 17, aged 78.

Beaver, Donald Charles ⊕ Detroit; born in Detroit Feb. 10, 1895; Detroit College of Medicine, 1927; specialist certified by the American Board of Pathology; clinical professor of pathology at his alma mater, now known as the Wayne University College of Medicine; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; founding fellow of the College of American Pathologists; founder, a member of the administrative board, and consultant of the Michigan Tumor Registry; founder, for several years treasurer, and, at his death, president of the Detroit Institute of Cancer Research; on the staff of the Woman's Hospital; died Aug. 10, aged 59.

Anderson, E. Stanley, Lima, Ohio; McGill University Faculty of Medicine, Montreal, Canada, 1924; member of the American Psychiatric Association; affiliated with the Lima State Hospital; died Aug. 9, aged 63.

Aronowitz, Harry Thomas ⊕ Bayonne, N. J.; St. Louis University School of Medicine, 1932; treasurer of the Bayonne Medical Society, of which he was past president; recording secretary of the Hudson County Medical Society; secretary of the medical board of the Bayonne Hospital, where he died July 27, aged 48.

Bell, John Carr, Belzoni, Miss.; Memphis (Tenn.) Hospital Medical College, 1898; died Aug. 18, aged 80, of peripheral neuritis.

⊕ Indicates Member of the American Medical Association.

Bizzell, Thomas Malcolm ⊕ Goldsboro, N. C.; University of Maryland School of Medicine, Baltimore, 1908; died June 9, aged 68, of myocardial infarction and hypertension.

Blott, Harmon E., Youngstown, Ohio; Western Reserve University Medical Department, Cleveland, 1888; past president of the Mahoning County Medical Society; served as county coroner and on the board of education; for many years affiliated with the Youngstown Hospital; died in the Masonic Home in Springfield July 24, aged 89, of cerebral hemorrhage and arteriosclerotic heart disease.

Bockman, Michael W. H., Hot Springs National Park, Ark.; University of Minnesota Medical School, Minneapolis, 1903; member of the Minnesota State Medical Association; served during World War I; formerly on the staff of St. Mary's Hospital in Minneapolis; died July 29, aged 75, of coronary disease.

Bomar, Francis Harrison, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1902; on the staff of the Knoxville General Hospital; died July 19, aged 77, of a heart attack.

Bond, Franco Gales, Flat River, Mo.; Ensworth Medical College, St. Joseph, 1912; died June 30, aged 67.

Books, William Johnston, New York City; Hahnemann Medical College and Hospital of Philadelphia, 1912; assistant professor of medicine at the New York Medical College, Flower and Fifth Avenue Hospitals; affiliated with Flower and Fifth Avenue Hospitals; died Aug. 15, aged 66.

Booth, Joel Clarence, Lebanon, Ore.; College of Physicians and Surgeons of San Francisco, 1900; for many years state senator; formerly mayor; served during World War I; affiliated with Lebanon Community Hospital; died July 18, aged 81, of arteriosclerosis and diabetes mellitus.

Bradley, Milton Maddox, Chatham, Ill.; Marion-Sims College of Medicine, St. Louis, 1892; died Aug. 2, aged 90, of shock as the result of a fall.

Cannon, Roy Francis ⊕ Joplin, Mo.; University Medical College of Kansas City, 1909; member of the Oklahoma State Medical Association; past president of the Ottawa County (Okla.) Medical Society; served during World War I; died in St. John's Hospital July 15, aged 65, of cerebral thrombosis.

Corry, Robert Thomas, New Canaan, Conn.; Columbia University College of Physicians and Surgeons, New York, 1913; died April 1, aged 65, of coronary occlusion.

Dowling, James Reginald ⊕ Massillon, Ohio; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1929; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War II; member of the staffs at Mercy and Aultman hospitals in Canton, and City Hospital in Massillon; died June 3, aged 48, of coronary heart disease.

Dunn, Joseph Clair, Cooperstown, Pa.; Eclectic Medical Institute, Cincinnati, 1897; president of the school board; affiliated with Franklin (Pa.) Hospital and the Oil City (Pa.) Hospital; died Aug. 9, aged 92, of virus pneumonia.

Farlow, Merton Almond ⊕ Lieut. Col., U. S. Army, retired, Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; entered the regular army in 1920; retired Dec. 31, 1937; served in the U. S. Army for 21 years; for many years on the staff of the Central State Hospital; died July 3, aged 71.

Forrest, Charles George, Clearbrook, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1899; died June 17, aged 88, of arteriosclerosis.

Gilmer, John Axley, Big Stone Gap, Va.; Maryland Medical College, Baltimore, 1904; died June 13, aged 63, of arteriosclerosis.

Graham, Arthur Henry, Montgomery, Ala.; University of Toronto Faculty of Medicine, Toronto, Canada, 1922; specialist certified by the American Board of Public Health; member of the American Public Health Association; county health officer; died Aug. 18, aged 53, of a heart attack.

Guyer, Frederick Newman ✠ Albany, N. Y.; Albany Medical College, 1897; formerly deputy city health inspector; a director of the Permanent Savings and Loan Association; died in the Albany Hospital July 29, aged 83.

Hewitt, Bryant Jefferson ✠ McComb, Miss.; Memphis (Tenn.) Hospital Medical College, 1911; died Aug. 21, aged 68.

Hopkirk, Clarence Cowles ✠ Los Angeles; Northwestern University Medical School, Chicago, 1910; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; at one time a medical missionary in Korea; one of the founders and on the staffs of St. John's Hospital and Santa Monica Hospital in Santa Monica, where he died July 10, aged 68, of cerebral hemorrhage.

Hoyle, Christian Kevin Campbell ✠ Asheville, N. C.; University of Virginia Department of Medicine, Charlottesville, 1939; served during World War II; affiliated with the Veterans Administration Hospital in Oteen; died July 17, aged 49, of cerebral aneurysm.

Hubner, Edmund Henry ✠ Yonkers, N. Y.; New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1921; served as assistant clinical professor of obstetrics and gynecology at his alma mater; fellow of the American College of Surgeons; a lieutenant commander in the U. S. Naval Reserve during World War II; affiliated with Flower and Fifth Avenue Hospitals and Yonkers General Hospital, where he died Aug. 2, aged 63, of carcinoma of the sigmoid.

Jacobs, John Martin ✠ Elgin, Ill.; Illinois Medical College, Chicago, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; died in the Elgin State Hospital July 28, aged 76, of bronchopneumonia.

Joughin, James Louis ✠ New York City; McGill University Faculty of Medicine, Montreal, Canada, 1906; formerly assistant clinical professor of neurology at Columbia University College of Physicians and Surgeons, and professor of clinical neurology and psychiatry at the New York Post Graduate Medical School and Hospital; for many years affiliated with the Neurological Institute; died in the Harkness Pavilion Aug. 17, aged 72.

King, Hiram Irving ✠ Aberdeen, S. D.; Northwestern University Medical School, Chicago, 1905; fellow of the International College of Surgeons and the American College of Surgeons; on the staff of St. Luke's Hospital; died June 24, aged 72, of coronary occlusion.

King, Ralph ✠ Olney, Ill.; University of Illinois College of Medicine, Chicago, 1916; served overseas during World War I; died in the Richland Memorial Hospital July 26, aged 67, of injuries received in a fall.

King, Stephen A. ✠ Karnes City, Texas; Hospital College of Medicine, Louisville, 1890; for many years county health officer; died in San Marcos July 13, aged 86, of hemiplegia and cardiac failure.

Knox, Andrew Christy ✠ Kansas City, Mo.; Kansas City Medical College, 1899; died in the Kansas City General Hospital Aug. 9, aged 80, of a fractured hip and bronchopneumonia.

McDermott, Joseph Zimmerman ✠ New York City; Columbia University College of Physicians and Surgeons, New York, 1905; died July 11, aged 71, of coronary occlusion.

McDowell, Albert Sydney, Tucson, Ariz.; Detroit College of Medicine, 1902; past president of the North Central (Mich.) Medical Society; died June 21, aged 82, of coronary occlusion.

McKee, Harley Shultz ✠ Greensburg, Ind.; Illinois Medical College, Chicago, 1907; died in St. Mary's Hospital, Rochester, Minn., June 18, aged 76, of peritonitis and carcinoma of the stomach.

Moore, Carlyle H. ✠ Vandalia, Ill.; Barnes Medical College, St. Louis, 1896; affiliated with Mark Greer Hospital, where he died July 22, aged 80, of myocarditis.

Morehouse, Eli Martin, Lisbon, N. Y.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1901; died in Owatonna, Minn., July 9, aged 84, of carcinoma of the larynx and chronic interstitial nephritis.

Oakes, Robert Allan ✠ San Diego, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; died suddenly Aug. 7, aged 72.

Rubino, Anthony Peter ✠ Medical Director, U. S. Public Health Service, Naples, Italy; George Washington University School of Medicine, Washington, D. C., 1925; fellow of the American College of Surgeons; a medical officer in the U. S. Public Health Service since 1926; for many years on the staff of the U. S. Public Health Service Hospital in Memphis, Tenn.; medical director of the United States consulate in Naples; died June 8, aged 59, of heart disease.

Schmehl, Seymour T. ✠ Reading, Pa.; Jefferson Medical College of Philadelphia, 1891; formerly secretary and treasurer of the Berks County Medical Society; at one time county coroner, physician of the Berks County Prison, and member of the old school board; for many years on the staff of St. Joseph's Hospital; died in Reading Hospital June 20, aged 89, of arteriosclerotic heart disease.

Schulz, Gustav Bernhard ✠ Cape Girardeau, Mo.; Beaumont Hospital Medical College, St. Louis, 1892; an Associate Fellow of the American Medical Association; past president of the state board of health; affiliated with Southeast Missouri Hospital; president of the Southeast Savings & Loan Association; died July 8, aged 83, of cardiovascular renal syndrome.

Sheinman, Louis ✠ New York City; Columbia University College of Physicians and Surgeons, New York, 1911; fellow of the American College of Surgeons; director of surgery at Mount Eden Hospital; on the staff of the Lebanon Hospital; died in Pine Hill Aug. 2, aged 69, of heart failure.

Taylor, Harvey Stokely ✠ Dallas, Texas; Southwestern University Medical College, Dallas, 1911; during his practice in Kaufman served as president of the Kaufman County Medical Society; died May 19, aged 70.

Teal, D. Thompson, Chesterfield, S. C.; Baltimore Medical College, 1893; died July 19, aged 83, of carcinoma of the prostate.

Titus, Emily Newbold, Glen Cove, N. Y.; New York Medical College and Hospital for Women, Homeopathic, New York, 1894; died in the North Country Community Hospital Aug. 7, aged 91.

Van Schaick, Roy E. ✠ Marion, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1910; affiliated with the Clintonville (Wis.) Community Hospital, where he died April 26, aged 65, of coronary infarction.

Vernaglia, Anthony Paul Joseph ✠ Hawthorne, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1928; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; served as president of the New Jersey Society of Anesthesiologists; died in the American Army Hospital in Baden, Germany, June 9, aged 49, of cerebral vascular accident.

Wade, Henry Albert ✠ Brooklyn; University of the City of New York Medical Department, 1894; life fellow of the American College of Surgeons; owner and medical director of the Wade Hospital, where he died Aug. 9, aged 79, of coronary thrombosis.

Walker, Benjamin Franklin ✠ Los Angeles; Barnes Medical College, St. Louis, 1901; an Associate Fellow of the American Medical Association; died July 11, aged 76.

Walker, James Douglas ✠ Los Angeles; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; for many years on the staff of the California Hospital, where he died July 15, aged 73, of coronary thrombosis.

Young, Blaine Augustus, Spadra, Calif.; University of Nebraska College of Medicine, Omaha, 1914; for many years on the staff of the Pacific State Hospital; died July 20, aged 66, of coronary occlusion.

FOREIGN LETTERS

DENMARK

Detection of Sources of Syphilis.—In 1940 a social worker was attached to the Marselisborg Hospital, Aarhus, to discover the sources of infection of patients with venereal disease. The field worker had to familiarize himself with the environment of these patients and keep a special record of his discoveries. His task was not only to detect but also to persuade the sex contacts themselves to submit to medical examination. His records had to be kept independent of the hospital case records, but he was expected to keep his own records up-to-date by supplementing them with the information obtained from the hospital's staff or other physicians. Dr. Kaj Spendser has recently compared these records with the hospital's case records in an attempt to estimate the efficiency with which the sources of infection of cases of syphilis were detected. His findings are published in *Nordisk Medicin* for July 22, 1954. During the period 1943 to 1948 inclusive, 609 men and women were found to be suffering from early syphilis. They reported 1,115 sex contacts, and by dividing this number by the 609 patients a "contact index" of 1.83 was found. This figure comes somewhere between the corresponding American figures, with a minimum "contact index" of 0.87 and a maximum of 3.31. In 648 of the 1,115 contacts the name and address of the contact were given to the social worker. In 569 of the 1,115 contacts a medical examination was undertaken, and 388 were found to be syphilitic. The remaining 181 had not been infected with syphilis. Altogether 122 contacts submitted to treatment in the early stage of their disease, and 25 were treated in the latent stage. Spendser concludes that his observations compare favorably with those made in other countries. The Danish venereal disease legislation of 1947 imposes the task of detecting sources of venereal disease on the physician who undertakes to treat such cases.

Treatment of Meningitis with Streptomycin.—From 1932 to February, 1954, a total of 31 patients suffering from influenzal meningitis has been treated at the Odense County Hospital. The diagnosis was confirmed in all these cases by a bacteriological examination at the State Serum Institute. In a report on these cases by Dr. C. Mose, published in *Ugeskrift for læger* for July 22, 1954, it is pointed out that there was no great seasonal variation in the incidence of the disease but it showed a preference for children less than 3 years old. The only adult patient was a 59-year-old woman. Treatment with streptomycin was introduced in 1947. Among the 10 patients treated before the use of streptomycin only 1 recovered, whereas among the 21 streptomycin-treated patients 20 got well. The only patient who died in spite of treatment with streptomycin was a 9-month-old boy who had been ill for eight days before admission to the hospital. As soon as purulent meningitis is diagnosed, a sulfonamide, penicillin, streptomycin, and chloramphenicol are given. When a bacteriological examination reveals Hemophilus influenzae, treatment is continued with only chloramphenicol and streptomycin until the temperature has been normal for four or five days. On the strength of recent publications the author recommends regularly supplementing streptomycin with chloramphenicol in the hope of an even greater improvement in the prognosis.

Care of Deaf Children.—At a meeting of the Danish Pediatric Society, Dr. J. Arnvig gave an account of the action taken to give effect to the law of January 27, 1950, concerning the welfare of the deaf. His findings were published in *Nordisk medicin* for Aug. 12, 1954. Under the Ministry for Social Affairs a "deafness committee" is responsible for inspection by an expert on hearing of a deaf child's home and for sending such a child to an appropriate clinic for examination. When, usually after the age of 2 years, a child's speech disorder is conceivably due to defective hearing, notice is sent to the "deafness committee." The examination in the otology clinic usually takes several days and includes instructing the child's parents with regard to the measures to be taken, whether it be lip reading or any other process. In suitable cases a hearing aid is adjusted to the deaf child, whose subsequent career is followed by experts who visit the child's home. All this is done at the expense of the state. In an analysis of 484 deaf children attending four different special schools, Arnvig found that inherited diseases of hearing accounted for deafness in 28.5%, diseases of hearing acquired before birth in 8.7%, diseases of hearing acquired during birth in 10.1%, diseases of hearing acquired in childhood in 31.6%, and nonclassifiable diseases in 21.1%.

The Changing Causes of Death.—Drs. Karen Dreyer and Erna Frandsen report profound changes in the relative importance of the various causes of death between 1921 and 1951 in *Ugeskrift for læger* for Aug. 12, 1954. In 1921 cancer accounted for 12% of deaths, heart disease for 10%, tuberculosis for 9%, other infectious diseases for 7%, vascular diseases in the central nervous system for 5%, and violence for 3%. The corresponding figures for 1951 were heart disease 28%, cancer 20%, vascular diseases in the central nervous system 13%, violence 8%, tuberculosis 2%, and other infectious diseases 1%. It is deplorable that violent deaths, which include accidents, suicide, and homicide, have risen from 3% to 8%, a rise reflecting profound changes in living conditions. In 1951 every second death among boys between the ages of 5 and 14 was a violent death, and this was the case with 60% of the males between the ages of 15 and 24 years. From one-half to one-third of the violent deaths in persons under the age of 25 years were due to traffic accidents, but between the ages of 25 and 65 years suicides accounted for about half of all the violent deaths among men. For women the corresponding suicide rate was even higher.

ENGLAND

British Diabetic Association Meeting.—At the annual scientific meeting of the British Diabetic Association Dr. K. Hallas-Møller of Copenhagen delivered the eighth Banting Memorial Lecture on the insulin zinc suspensions (I. Z. S.). He said that the addition of small quantities of zinc to insulin solution in an acetate buffer produced a soluble complex that was precipitated at the pH of blood and had a delayed action. The addition of protamine, globin, or other substances of high molecular weight designed to delay absorption was, therefore, unnecessary. Two complexes are present in this new preparation, crystalline and amorphous, and the proportions of these determine the mode of action. The amorphous, which is quick acting (12 to 16 hours), is known commercially as "semi-lente." The crystalline, slower in action (30 hours), is known as "ultra-lente." A mixture of seven parts of crystalline and three parts of amorphous give an insulin, called "lente," with an intermediate action. More than 80% of diabetics can be controlled by one injection of lente insulin a day. Zinc is an essential element in the pancreas, and competition between insulin and other substances for zinc might play a part in the cause of diabetes.

Dr. S. G. Oakley of London described the results he had obtained treating 500 diabetics with the new zinc insulins. He had obtained good results in children and new patients. In old patients the dose had to be increased by at least 25% when changing over to zinc insulin, otherwise deterioration and ketosis might occur. Dr. J. M. Malins of Birmingham urged caution with any new insulin preparation, because the enthusiasm of the physician and the patient might influence the results. He found the results with insulin zinc suspension difficult to assess because it had been given to many patients with long-standing diabetes that was difficult to control by other insulins. He thought that I. Z. S. is probably as good as protamine zinc insulin (P. Z. I.) or P. Z. I. and soluble insulin in those patients who take less than 80 units of insulin a day. The great advantage of I. Z. S. is the ease of handling by the patient.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Dr. G. R. Venning of Manchester said that he was using I. Z. S. routinely in outpatients and inpatients. Apart from slightly increased amounts of carbohydrate given later in the day, this should be evenly distributed. Hypoglycemia, if it occurs, is not severe and takes place from noon onwards. Local and general reactions still occur with I. Z. S. Dr. J. M. Stowers of London gave I. Z. S. to a group of patients that had not been adequately controlled. To avoid morning hyperglycemia, the insulin should be given at least an hour before breakfast and extra carbohydrate should be given later in the day. Most of the patients needed 30 to 70 units daily, although some required 150 units for adequate control. The "brittle" diabetics fare no better on I. Z. S. than on the other insulins. Dr. Nabarro of London read a paper on the use of fructose in the treatment of diabetic ketosis. This had been recommended instead of glucose, but he had found it to be no better.

Dr. J. P. Randle of Cambridge and Dr. J. Vallance-Owen of London described the assay of insulin using the utilization of glucose by the isolated rat diaphragm as a measure of insulin activity. Their results did not agree, owing to different techniques. The pituitary probably played a part in controlling some of the substances in the plasma that Dr. Randle was measuring. It was really "insulin-like activity" rather than insulin itself that he was measuring. Plasma insulin could be increased by giving glucose to normal subjects. Dr. Vallance said he found no insulin in the plasma of patients with acute diabetes, although it was present in the obese. He found that adding insulin to the plasma of patients with severe diabetes did not raise the level as measured by his rat diaphragm technique, suggesting that there is an insulin inhibitor in the plasma of such patients. Dr. F. V. Flynn of London described studies on paper chromatography in two patients with essential pentosuria; their glucose tolerance tests were normal. Dr. W. H. H. Merivale and Dr. R. A. Hunter of London gave an account of an investigation on the effects of barbiturates on carbohydrate metabolism. The glucose tolerance tests of their subjects gave abnormal curves, often with hypoglycemia five hours after the administration of the glucose. Dr. Joan Walker of Leicester said that adolescent diabetics with limited intelligence and poor environment need protection and education. Sometimes they are psychiatric problems. She had known certain patients to overdose themselves with insulin to produce a hypoglycemia in order to escape from unpleasant situations. Special centers to deal with diabetics who are psychiatric or social problems are needed.

Legal Actions Against Hospitals.—Since the hospitals were nationalized in 1948, the number of legal actions brought by patients for negligent medical or nursing treatment has increased every year. The minister of health stated that the following payments for compensation had been made to patients by hospitals in England and Wales, largely as a result of claims for damages brought in the courts: in 1948-1949, $21,168; in 1950, $66,180; in 1951, $107,956; in 1952, $298,407; and in 1953, $472,250. These sums do not include legal costs, which are also paid by the Ministry of Health and are often as much as the compensation paid. Judging from the cases reported so far it looks as if the compensation for 1954 will be in the region of one million dollars. The minister of health was asked if this was evidence that the health service under state control broke down when physicians and nurses were relieved of personal responsibility. The minister replied that he was certain that there was no deterioration in the service. The Ministry of Health has now ruled that, in cases brought by hospital patients alleging negligence of nursing staff and full time medical staff, liability is to be transferred to the hospital authority, that is, to the Ministry of Health. Medical consultants must accept individual responsibility and are not included.

A New Short-Acting Anesthetic.—In 1932 Professor Weese introduced hexobarbital. He died recently, and there has now appeared a posthumous paper, written with F. H. Koss (*Deutsche med. Wchnschr.* **79**:601, 1954), on an even shorter-acting barbiturate, sodium 5,5-allyl-(2′-methyl-propyl)-thiobarbiturate, also known as "baytinal." It is specially recommended for use in short operations or painful procedures lasting for 10 minutes or less. It has been used without any mishap on 350 patients in a Düsseldorf surgical clinic. The patient need not be hospitalized and is ambulant after half an hour. There is retrograde amnesia for 10 minutes after return of consciousness and some euphoria for an hour or two. There is no sleepiness or drowsiness on recovery. Used alone the drug is unsuitable for long operations or those in which the abdominal wall must be relaxed. In such cases it can be used with succinylcholine or other muscle relaxants. Baytinal is administered intravenously in doses of 2 to 3 cc. of a 10% solution, and after one to one and a half minutes a further 1 to 3 cc. is given slowly. A further 3 to 4 cc. can be injected, but a total dose of more than 10 cc. (64 mg.) has not been used. Baytinal closely resembles hexobarbital but is more rapidly destroyed.

Aldosterone.—Treatment of a case of Addison's disease (adrenal cortical hypofunction) with aldosterone, the new salt-regulating hormone recently isolated under the name of electrocortin, has been described by Professor A. Kekwick and Dr. G. Pawan of London (*Lancet* **2**:164, 1954). They regulated the oral dose to maintain the patient in reasonable electrolyte balance, the most noticeable effect being on the sodium output. The glucose tolerance test was improved, the skin pigmentation diminished, the blood pressure was raised, and there was a fall in eosinophils in the peripheral blood. Orally administered aldosterone appeared to be about 30 times as active as intramuscular injections of desoxycorticosterone acetate in maintaining sodium balance.

MEXICO

Evaluation of Tests for Adrenal Insufficiency.—Dr. Juan José Paullada in *Revista de investigación clínica* for April-June, 1954, page 249, reports the results obtained from the functional tests of the adrenal cortex in 28 patients with adrenal insufficiency studied at the Hospital de Enfermedades de la Nutrición. This study was made to determine which of these tests is most useful in diagnosis. The patients were divided into two groups: 23 with primary adrenal insufficiency and 5 with panhypopituitarism and secondary adrenal insufficiency. It was found that when a negative equilibrium in sodium and chloride ions and a retention of potassium ions existed a low blood pressure was present. There was, furthermore, a slow elimination of water due to an increase in the antidiuretic hormone or of some substance with similar physiological action. When the systolic and diastolic pressures were considered separately it was found that there was a low systolic pressure in 65% of the patients and a low diastolic pressure in 52% of the patients with primary hypoadrenalism. The systolic as well as the diastolic pressure was decreased in 20% of the patients with panhypopituitarism.

The concentration of sodium in the plasma was found to be low in 70% of the patients with primary hypoadrenalism and in none of the patients with hypopituitarism. Hyperpotassemia was found in 71% of the patients with primary hypoadrenalism and in 60% of those with panhypopituitarism. The water-elimination tests were abnormal in 95% of the patients with primary adrenal insufficiency and in 100% of those with secondary adrenal insufficiency. As a control, seven normal subjects were tested and the water test was found to be normal in all of them. Hypoglycemia was found in 38% of the patients with primary hypoadrenalism and in 40% of the patients with secondary adrenal insufficiency. Sixteen glucose tolerance tests were performed; 50% of the patients with primary hypoadrenalism showed a flat curve. Of the five patients with secondary adrenal insufficiency four had a flat curve. Seven normal controls all had curves within normal limits. The determination of the absolute number of circulating eosinophils did not give any conclusive evidence of the functional state of the adrenal cortex. Lymphocytosis was present in 100% of the patients with primary hypoadrenalism. It is said that epinephrine produces eosinopenia through stimulation of the anterior lobe of the hypophysis, which in turn causes an increase in the secretion of the corticotrophic hormone, which then stimulates the adrenal cortex to liberate 17-hydroxysteroids, which ultimately produce a decrease in circulating eosinophils. If four hours after the subcutaneous injection of epinephrine there is a 50% or greater decrease in eosinophils the adrenal cortex is normal; if it does not reach this figure, there is probably a decrease in adrenal cortical activity or some other alteration in the hypophysial-adrenal axis. Of 24 patients

with primary hypoadrenalism so tested 21 showed less than 50% decrease in eosinophils. Of 21 normal controls subjected to this test 4 showed a greater than 50% fall of eosinophils when it was to be expected that all of them would be normal in this respect. This led Dr. Paullada to believe that this test has no diagnostic value in adrenal insufficiency.

The intramuscular injection of 20 units of corticotropin (ACTH) normally produces a 50% or more decrease in the circulating eosinophils after four to eight hours. This test was carried out in 14 patients with primary hypoadrenalism, and 13 showed no change. In six patients determination of 17-ketosteroids was carried out before the hormone was given and on the same day of its administration. In none of these patients was there an increase in the elimination of 17-ketosteroids. In order to check the results, eosinophil counts were done on eight normal subjects after the injection of 20 units of corticotropin. In all of them there was a decrease of 50% or more within four to eight hours of the injection. Also in two of them 17-ketosteroid elimination determinations were made and found to be markedly increased. Due to the lack of secretion of androgenic hormones, the 17-ketosteroids should be decreased to a greater degree in women than in men. The results obtained showed a 100% decrease in the patients studied. The author concludes that the most useful tests for primary or secondary adrenal insufficiency are: (1) the determination of 17-ketosteroids, (2) the lack of increase of these compounds after the intramuscular injection of 20 units of corticotropin, (3) the degree of lymphocytosis, (4) the test for water elimination, and (5) the absence of or a decrease of more than 50% in eosinophils after an intramuscular injection of 20 units of corticotropin.

PERU

Chlorpromazine in Neuropsychiatry.—At a meeting of the Neuropsychiatric Society in July, Drs. Sal y Rosas, R. Jerí, and F. Sánchez reported the results of their investigations on 63 persons affected with diverse mental and neurological diseases treated with chlorpromazine (10-[μ-diethylaminopropyl]-2-chlorophenothiazine hydrochloride). A patient with severe psychosis or neurosis was given 25 mg. of the drug intramuscularly. This daily dose was increased gradually to 250 mg. daily. This therapy was maintained from three to five weeks. From then on the oral route was used, and the dose was decreased until a daily dose of 75 to 150 mg. was reached. Simultaneously the patient was given 100 to 150 mg. of phenobarbital or amobarbital by mouth. Some patients also received electroshock therapy. All these patients were carefully watched day and night. A patient whose neurosis was less severe was given 75 to 150 mg. of chlorpromazine daily. In all patients psychological improvement was observed. Those with manic depressive psychosis showed a marked improvement, and only one required electroshock. Results were satisfactory in the patients with schizophrenia, especially in the chronic cases considered incurable, as long as the personality had not been damaged. In the patients with symptomatic psychoses moderate improvement was observed. In the epileptic patients the results have been promising, but the authors consider that the number of these patients was too small to give conclusive results. Of the patients with neuroses, the best results were obtained in those with the anxiety type. All neurotic patients also received psychotherapy, and much of their improvement was attributed to this. The patients in states of depression responded less favorably than those with anxiety. The treatment must be prolonged after the symptoms have disappeared, because relapse may occur if the dose is diminished or treatment suspended. These relapses were easily checked by resuming the original treatment. For this reason all patients are kept on a maintenance dose of the drug. In all the patients tachycardia, increase of appetite, and lowering of the blood pressure were noted, but untoward side-effects were seen in few patients. These side-effects included nasal obstruction, epistaxis, and diminution of visual acuity. If the drug is given parenterally it is less apt to cause constipation.

In June, Drs. A. Seguín and Renato Castro de la Mata of Lima had reported their experience with chlorpromazine alone. They used an average daily dose of 100 mg. given intramuscularly for three or four days, then reduced it slowly to 25 mg. daily for about 20 days. Their results were fairly good, especially in patients with excitement from any cause. In some patients with schizophrenia the response was surprisingly good. None of the Peruvian investigators has attempted to produce a state of artificial hibernation in any of their patients with this drug. They have only produced a state of apathy in which the patients will respond to stimuli but give the impression that they would like to be alone.

Typhus in Peru.—The Public Health and Social Assistance Ministry, in collaboration with the regional Pan-American sanitary office of the World Health Organization, has started a campaign to study and control murine typhus in the south of Peru. Since 1950 a 10% chlorophenothane (DDT) powder has been used to control the disease. This was at first applied using hand atomizers every six months in the towns of five provinces of Cuzco, two of Puno, and one of Tacna. Since 1953 clothing has been impregnated with chlorophenothane. This requires the active collaboration of the public and the instruction of a responsible member of each family. For the control of the epidemics, the vaccination of patients and their contacts, or a whole community if the exposure to the disease was extensive and the number of inhabitants relatively small, was used. These methods have shown excellent results. Since 1950 chlorophenothane has been applied to about 155,000 persons in Cuzco as well as to their beds and clothing. In Puno the campaign was started in 1951, and 60,000 persons have been treated twice a year with chlorophenothane since then. In Tacna the campaign was started in 1952, and 10,000 persons have already been treated. Before the campaign was started the mortality rate in the zones in Cuzco later treated was 66 per 100,000 population, and the morbidity rate was 95 per 100,000; in 1951 these rates were reduced to 0.4 and 17.5 respectively; in 1952 they were zero and 0.9; and in 1953 they were zero and 1.4. In the zones in Cuzco not included in the campaign, the mortality rate before the campaign was started was 8 per 100,000 population and the morbidity rate was 42.5; in 1951 these rates were 6.9 and 22.5 respectively; in 1952 they were 16.3 and 22.1; and in 1953 they were zero and 5.4. Similar results were obtained in Puno and Tacna. No chlorophenothane-resistant lice have been reported.

Epidemiological studies show that in the rural communities of Puno 50.4% of the 1,426 persons examined had a positive complement fixation. Of 1,023 persons examined in the province of Arequipa 22.3%, and of 479 persons of rural communities in Cuzco 50% had a positive complement fixation. In 1953 vaccinations with a live avirulent strain of Rickettsia prowazekii were given for the first time to a civil population. This study is being made with the collaboration of the epidemiology department of Tulane University. About 15,000 persons have been "vaccinated," half of them with the typhus vaccine and half (as controls) with an innocuous substance. None of those receiving the vaccine and only a few of the controls have contracted typhus. About 2,000 persons had reactions to the vaccine. The intensity of these reactions was about midway between those produced by smallpox and those produced by typhoid vaccine.

Aspiration Biopsy in Breast Tumors.—Drs. J. Campos de Gastro and J. García Guiesman have reported on the diagnostic value of the aspiration biopsy of breast tumors in 80 patients studied from June, 1952, to April, 1953, in *Anales de la Facultad de Medicina,* number 2, 1953, page 204. In 42 of the patients the diagnosis was malignant tumor, in 30 no malignant cells were found, and in 8 the cytological findings were borderline. In 32 of the 42 patients with supposed malignant cells, a surgical biopsy was obtained, and this confirmed the diagnosis previously made in 30. Of the 10 patients on whom no surgical biopsy was performed 5 died of breast cancer. In 15 of the 30 patients in whom aspiration biopsy revealed no malignant cells a surgical biopsy was done, and in 5 malignant disease was found. In the remaining 15 no malignant cells developed in the follow-up period. In seven of the eight patients with borderline cytological findings surgical biopsy revealed no malignant cells; no definite diagnosis was made on the eighth. The authors believe that aspiration biopsy is a valuable aid in the diagnosis of tumors of the breast but that the surgeon must work in close cooperation with the pathologist if the best results are to be obtained.

GOVERNMENT SERVICES

AIR FORCE

Personal.—Col. Robert J. Benford, M.C., U.S.A.F., editor, *U. S. Armed Forces Medical Journal,* presented a paper, "The Development and Growth of Aviation Medical Literature," at the annual meeting of the French-speaking branch of the Aero Medical Association in Zurich, Switzerland, Sept. 21. He also represented the Department of Defense at the Fifth International Medical Journalism Meeting of the World Medical Association in Rome, Italy, Sept. 30. Before returning to the United States on or about Oct. 4, Colonel Benford will visit Army, Navy, and Air Force headquarters in Germany to stimulate contributions to armed forces medical publications.

ARMY

Leprosy Survey in South Korea.—According to the Monthly Civil Affairs Summary signed by Col. Ralph V. Plew, M.C., U.S. Army, chief of the public health branch in South Korea, a survey was made during May and June in which it was found that in 15 leprosariums there were about 15,764 persons with leprosy. In 22 colonies there were 3,639 persons with leprosy who were more or less self-supporting. Outside of these institutions and colonies there were 1,227 persons with leprosy. There are seven preventoriums housing 480 noninfected children of parents who have leprosy. Three hundred thirty-six children with no sign of infection were still living with their parents in leprosaria. All children were under 16 years of age. These figures were said to be considerably lower than previous figures as quoted by the Korean Ministry of Health and were believed to be a more accurate picture of the numerical status of persons with leprosy in South Korea.

NAVY

Personal.—Capt. Cecil L. Andrews, M.C., has been assigned as director of the professional division, Bureau of Medicine and Surgery, Washington, D. C., succeeding Capt. Lloyd R. Newhouser, who was placed on the retired list after more than 30 years of active service.

VETERANS ADMINISTRATION

Veterans Compensation and Pension Payments Increased.—Nearly 3,300,000 veterans and certain dependents of deceased veterans will receive a 5% increase in monthly compensation and pension payments effective Oct. 1, 1954, under two bills recently signed by the President. Flat increases in excess of 5% were granted to widows and dependent parents of wartime veterans whose deaths were attributable to service.

The Veterans Administration, which said the increases will be included in checks mailed at the end of October, requested veterans and dependents not to write to the agency concerning the increases, because they are payable automatically.

The VA explained that compensation is payable for service-connected disabilities or deaths and that pension is payable for non-service-connected disabilities or deaths. The Compensation Act will increase service-connected payments to 2,036,000 veterans and to 311,400 dependents of deceased veterans, or a total of 2,347,400 persons. The Pension Act will increase non-service-connected payments to 544,700 veterans and to 520,000 dependents of deceased veterans, or a total of 1,064,700 persons.

Seriously disabled veterans who have lost the use of two or more parts of their bodies are paid certain statutory rates ranging from $266 to $400. These rates are increased by the law to a new range of $279 to $420. Veterans with peacetime service-connected disabilities will receive 80% of the new wartime compensation rates. Additional compensation is payable to veterans with dependents who are rated 50% or more disabled. No increase was voted in the amounts added for dependents.

The statutory allowance of $47 provided for certain disabilities, such as loss of one leg, arm, or eye was not increased. This amount is payable in addition to the percentage disability rates that were increased. The minimum compensation rate of $67 for arrested tuberculosis also was not increased. Increases in excess of 5% were granted to widows with no children and to dependent parents of deceased veterans. Widows and dependent parents of deceased veterans with peacetime service will receive 80% of these new wartime compensation rates. Rates for widows with children and for children alone are not affected by the new law.

Personal.—Dr. John J. Blasko has resigned from the Veterans Administration to accept the position of commissioner of mental health for the state of Connecticut. Dr. Reber M. Van Matre has been transferred from the St. Louis area to the central office in Washington to be chief of psychiatric training succeeding Dr. Blasko.

PUBLIC HEALTH SERVICE

Conference on Shellfish Sanitation.—The first national conference on shellfish sanitation in almost 30 years was held in Washington, D. C., Sept. 9 and 10. The meeting, called by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, was attended by health officials of some 20 states and Canada, and about 50 representatives of the shellfish industry. Officials of the Department of State, the Fish and Wildlife Service of the Department of the Interior, and the Food and Drug Administration also participated.

While shellfish have been implicated in epidemics of typhoid fever and other enteric diseases in almost every shellfish-producing country in the world, no such epidemic has occurred in the United States since the development of the Public Health Service state-industry cooperative shellfish-sanitation program in 1925. The problem has taken on new significance since Japan, Mexico, Iceland, the Netherlands, France, and Australia have expressed interest in exporting shellfish to the United States.

Several domestic problems considered by the conference stem from new developments in shellfish production and marketing. Among these are new breading and freezing processes, the growth of communities and industries adjacent to shellfish-growing areas, and the improvement of sewage-treatment facilities in coastal regions hitherto closed to shellfish production because of actual or potential pollution.

MISCELLANEOUS

Positions Open for Medical Officers.—New examinations have been announced by the U. S. Civil Service Commission for filling medical officer positions in certain federal agencies as follows: Positions of medical officer, paying $5,940 and $7,040 a year and medical officer (specialist), paying $8,360 to $10,800 a year, will be filled in various agencies in Washington, D. C., and vicinity, and in the U. S. Public Health Service and the Children's Bureau, located throughout the United States. Positions of medical officer, paying $7,425 to $10,450 a year, will be filled in the Panama Canal Company-Canal Zone Government Organization in the Panama Canal Zone. Applicants must be graduates of a medical school and for most of the medical officer positions at the entrance level they must have completed a full internship. For medical officer (specialist) positions, applicants must have completed appropriate study or residency training in the specialized field of medicine for which application is made. Professional medical experience is required for the higher-paying positions. No written test is required.

Information regarding these positions is given in announcement 415 for medical officer, announcement 414B for medical officer in the Panama Canal Zone, and examining circular EC-27 for medical officer (specialist). These notices may be consulted at most post offices or copies may be secured from the U. S. Civil Service Commission, Washington 25, D. C. Applications for positions in agencies in the United States must be filed with the commission's Washington office. For positions in the Panama Canal Zone, send applications to: Board of U. S. Civil Service Examiners, Balboa Heights, C. Z.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Compensation of Physicians: Unauthorized Services Rendered to Minor Child.—This was an action to recover the value of medical services rendered to the child of the defendant parents. From a judgment for the parents, the plaintiff physician appealed to the superior court of New Jersey, appellate division.

A member of the bar employed a housekeeper whose son was courting the child of the defendants. The defendants' daughter was therefore seen frequently at the attorney's home while visiting her fiancé's mother. On one such occasion the attorney fortuitously observed that Barbara was scarcely able to walk, and he discovered that her foot and ankle were exceedingly swollen and conspicuously discolored. He elicited from her the information that she had sustained the injury two or three days previously while playing basketball at the high school and that her parents deemed the painful injury to be nothing more than a sprain, hence they declined to provide her any medical aid. The attorney, in the exercise of good judgment, promptly dispatched his housekeeper, her son, and Barbara to the nearby office of the plaintiff, who by means of x-rays discovered that a bone of the foot had been fractured. A cast was applied. Barbara was thereafter obliged to use crutches until the removal of the cast a month or so later. Barbara resided with her parents, and the presence of the cast and the use of crutches must have been apparent to them. Upon completion of his services the plaintiff rendered a bill to the parents in the sum of $45, which they refused to pay. At the trial to recover the value of the plaintiff's services, the plaintiff testified that, had not proper medical care and attention been devoted to the injury at the time, permanent injury would have resulted. He frankly acknowledged, however, that he had not been consulted or employed by the defendant parents. The trial court, on motion of the defendants, entered judgment in favor of the defendants on the ground that they had not authorized the rendering of the services to their daughter.

In view of the nature of the injury and the refusal of the father to provide medical attention, there is no hesitation in classifying the care and treatment given in the exigent circumstances of the present case as a necessary. The fundamental question, however, said the court, is whether in the existing law of this state an action is maintainable against a father or mother for the reasonable cost of necessaries furnished by another to their infant child in their custody unless the parent has expressly or impliedly authorized the expenditure on his or her credit. In a very early New Jersey decision, said the appellate division, it was held that a parent is bound to provide his infant children with necessaries; and if he neglect to do so, a third person may supply them, and charge the parent with the amount. But such third person must take notice of what is necessary for the infant, according to his situation in life; and where the infant lives with his parent, and is provided for by him, a person furnishing necessaries cannot charge the parent. When the infant is sub potestate parentis, there must be a clear and palpable omission of duty, in that respect, on the part of the parent in order to authorize any other person to act for, and charge the expense to, the parent. This early decision, the court pointed out, had been followed on numerous occasions by the highest court in the state. Although the appellate division felt that in this case the following of such precedent created an injustice, it "reluctantly" affirmed the decision of the trial court. *Greenspan et al. v. Slate et ux., 92 A. (2d) 47 (New Jersey, 1952).*

THE LEISURE CORNER

GUN COLLECTING

The old West is dead; the American frontier has all but vanished. Yet there are now in this country more than 500,000 men, women, and children who still carry guns . . . carry them, repair them, mount them, and in many cases shoot them. These are the gun collectors of America, a fast-growing fraternity who have more than doubled since World War II and today outnumber all the sheriffs, deputies, saloon keepers, and banditti of the Jesse James era. According to John T. Amber, editor of *The Gun Digest,* physicians are in the vanguard of this new American call to arms. Amber, who knows hundreds of gun collectors in person, estimates that more than 5,000 physicians own gun collections and that many hundreds of them are important officials in the numerous gun clubs that are now springing up all over the country.

What does gun collecting offer as a hobby? First, but not necessarily foremost, is the lure of the sudden discovery, the fabulous find that will put you on Easy Street, or at least in cigarettes, for the rest of your days. Old guns, like foreign postage stamps, can suddenly become incredibly valuable; and it is often just a tiny proof mark or inscription that can make all the difference. Take, for example, the case of the "Winchester 73." A famous and historically important weapon—some experts have even called it "the gun that won the West"—up to a few years ago it was valued at between $75 and $100, a hearty sum but hardly a fortune. Then a gun collector named Bill Depperman conducted a special study of the "73" and discovered that it occasionally, very occasionally, bore a special inscription burnished into the barrel: "One of One Thousand" or "One of 1,000." Further digging at Winchester revealed that the company had added this description to guns proved by factory testing to be exceptionally accurate. Of 700,000 rifles produced, only 150 bore the now famous legend. Within days the hunt was on, as rifle enthusiasts all over the country bid up the prices . . . from $100 to $300 to $1,000 to $2,000. Today, if you happen to find a Winchester "73" in good condition with the words "One of One Thousand" cut into the barrel, take it rapidly to your neighborhood gun dealer. You will be offered anywhere from $5,000 to $7,500.

But to most "gun-men" there are even richer historical than financial rewards. The gun collector does not only read about early American history; he actually holds, and in many cases shoots, the pre-Revolution long rifles and smooth-bore Brown Besses that won both independence and the West. He relives early frontier days with a Colt or Remington strapped to his side, fighting off the muzzle-loading trade guns of the Indians or the pearl-handled derringers of the gamblers. He is equally familiar with the Winchesters of the plainsmen, the Springfields of the cattle herders, and the bone-crushing Sharps rifles of the buffalo hunters. Many hobbyists specialize within one era or field of history. One gun-collecting physician, for instance, has picked out the mildly grisly specialty of assassination guns and can describe every detail of the cap and ball pistol that killed Lincoln, the Iver Johnson revolver used to murder President McKinley, and the Thompson submachine gun that ended the life of "Kingfish" Huey Long. In tracking down the facts of the strange assassination of President James Garfield by the disappointed civil servant James Guiteau, he came up with the following virtually unknown story:

The President, minutes after the shooting, was rushed to the executive mansion, where he remained on the razor's edge between life and death for many weeks. The great medical difficulty was finding the bullet, and no one dared to attempt exploratory surgery. Finally a young scientist was permitted to try a new instrument on Garfield. Called the induction balance, it was

designed to locate the exact position and depth of the bullet by sound. After a few minutes the inventor told the assembled surgeons not only where he thought the bullet was but that it was "somewhat flattened." After a hurried conference, the eminent medical men decided to let the young man go. Garfield died; autopsy showed the bullet to be located and shaped as the young man had predicted. A final twist: the name of the young man was Alexander Graham Bell!

Thus does the study and collecting of old guns lead to the highlights and sidelights of American history.

Of course, the really great guns of the past—the pistol that killed Hamilton, or Buffalo Bill's favorite pistol, for example—are not available to the ordinary collector unless he happens to be possessed of a couple of hundred thousand dollars. For this reason, the American Weapons Corporation has for the last few years been putting out inexpensive replicas of the guns that played dramatic roles in history. Current favorites include Billy the Kid's "Lightning" and Jesse James' "Peacemaker." The gun hobbyist need not limit himself to American firearms, and a large minority specialize in European weapons. These collectors can talk for hours about a beautifully chiseled wheel lock or snaphaunce by one of the Cominazzi of Brescia, an ivory German pistol of the 16th century, or a masterwork by Napoleon's world-celebrated gunmaker, Boutet. The house of gun collecting obviously contains many rooms, all of them fascinating, and at this point you may be tempted to rush off to your local gun shop. Therefore, an important word of caution. Most would-be gun collectors enthusiastically jump in with both feet and end up by getting drowned either in debt or in worthless iron.

Expert John Amber describes the evolution of the average beginner this way: "The spell is upon him. Wife, family, job and aspirations all take a back seat as he garners guns with great abandon from every era, nation and source he can get his hands on. He neither investigates nor examines. He is a member of no gun clubs and owns no gun catalogues. But he does listen with eagerness to every tall tale that is foisted upon him. He's already bought 'Jesse James' favorite Remington,' and is now working on Wyatt Earp's legendary Colt 44. Then suddenly one morning he wakes up, and it is all over. He has on his hands a small folder of bills and a large bushel basket full of assorted rusty objects. At this point he can take one of two courses: (*A*) call in the junk man and take up golf or (*B*) go about gun collecting in a sensible way." In order to help others along this latter path, Amber, who owns 675 guns himself, puts forward these five basic tips:

1. Read about guns. There are literally hundreds of books on antique and modern guns, and you should dip into a number of them before actually buying anything. Two volumes are absolute musts: Chapel's "The Gun Collector's Handbook of Values" and *The Gun Digest*. Chapel's work was last revised in 1951, so the values are not quite up-to-date, but they will give you a first-rate idea of just what guns are worth. *The Gun Digest* comes out every year and includes a directory of all gun dealers, a gun book review section, and more than 30 articles on virtually all phases of gun collecting. So much for background.

2. Join gun clubs. Right now there are more than 30 important arms associations in the United States. Join your local chapters; go to meetings; study the arms exhibited; talk to other members; listen plenty; and above all, don't buy yet.

3. Pick a specialty. Concentrate within a small area first and then work outward. Some collectors pick a historical period, such as the Civil War or the American Revolution. Others choose a particular weapon. But even here the picture can get pretty complicated; for instance, under "Colts" the current *Gun Digest* lists four separate categories: Colt percussion revolvers, Colt cartridge pistols, Confederate Colts, and Colt shoulder arms.

4. Don't send money. At this point you are ready to choose—but not to buy. This goes particularly for sales through the mail. Reputable dealers, which means 98%, will advertise one of two arrangements, both highly favorable to you: (1) purchase on three to seven day approval (during this period you can return the weapon and receive your money back) and (2) express collect with examination privileges, allowing you to inspect the arm in the express office.

5. Consider condition. Most beginners, once they have finally captured the gun of their choice, reach for their wallet or checkbook. Naturally, each gun should be carefully inspected from stock to muzzle to determine just how it compares with other firearms of like date and type. To make this job easier, the current edition of *Guns* describes four conditions: *fine*—55% of original factory finish, perfect working order; *good*—some wear but no abuse, good working order; *fair*—scratches and bruises but still in working condition, although some original parts may be replaced; and *poor*—permanently out of order and badly cracked or rusted; should neither be sold nor bought. Attention to these points will help you get not just the right gun but the right gun in the right condition.

To the medical man, gun collecting can be a real hobby, not an occasional puttering around in the workshop or study. Unquestionably it takes time, money, and concentration, but it offers excitement, suspense, and an opportunity to relive great sections of the American and world past. A hundred years ago, the average physician regularly carried a well-oiled Colt or derringer. Today, many physicians have the very same guns, but now they are carefully and handsomely mounted in the den, garage, or office waiting room. All in all, it seems a much happier arrangement.

MEDICAL FILM REVIEWS

NEW FILMS ADDED TO A. M. A. MOTION PICTURE LIBRARY

Alcoholism: 16 mm., black and white, sound, showing time 22 minutes. Produced in 1953 by Encyclopaedia Britannica Films, Inc., Wilmette, Ill., in collaboration with Seldon D. Bacon, Ph.D., Yale Center of Alcohol Studies, and Raymond G. McCarthy, Yale Plan Clinic. Procurable on loan (service charge $2) from Committee on Medical Motion Pictures, American Medical Association, 535 N. Dearborn St., Chicago 10.

The story of Ed Grimer, an alcoholic whose illness has become more and more serious during the previous 10 years, is told in this film. His periodic drinking sprees eventually cause the breakup of his home and the loss of his job. A detailed character study, tracing the subject's personality development from childhood, is presented, and the film describes, in vivid dramatic scenes, the tension that builds up within Grimer and leads to an alcoholic "bender." Milestones in his path to alcoholism are illustrated: "sneaking" extra drinks, memory blackouts, morning drinks, and hang-overs. After his wife leaves him, Grimer becomes a patient in the public clinic for alcoholics, and the film traces, step by step, his gradual recovery and eventual reunion with his family. The film discusses other types of alcoholics in addition to the type represented by Ed Grimer and notes that different persons require different treatment. The role of Alcoholics Anonymous in combating alcoholism is discussed. The film emphasizes the need for increased treatment facilities and ends with a plea for better understanding of alcoholism as an illness. The actors are convincing, the episodes portrayed are extremely real, and no efforts are made to bolster the social and psychological arguments with inaccurate physiological information. The message of the film is given in a direct manner, and anyone of any age or degree of preparation is able to draw from it as much as matches his capacity for understanding. The photography and narration are well done. The film would be of interest to almost any audience, including physicians and scientists; it is especially recommended for high school and elementary school classes in health education.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Recognition of Disturbances in Acid and Basal Metabolism of Organism: I. Definitions, Theory, Manner of Computation, Method of Analysis and Normal Values. II. Value of Laboratory Analyses in Diagnosis. III. Problems Concerning Treatment of Disturbances Together with Attempt of Organism at Own Regulations. P. Astrup. Ugeskr. læger **116**:758-771 (May 20) 1954 (In Danish) [Copenhagen, Denmark].

The terms are discussed that in Astrup's opinion are today the most suitable with reference to disturbances in the acid-base regulation of the organism. Brønsted's definitions of acids and bases are approved. Simultaneous measurements of the pH in the blood and the total carbon dioxide content in the plasma show that clinical evaluation of disturbances in acid and basal metabolism only by measurement of the total carbon dioxide in the plasma is insufficient. Examples illustrate the clinical value of differentiation between the respiratory and nonrespiratory (metabolic) components in the individual cases. The disturbances in acid and basal metabolism are considered with regard to the organism's own pH regulation and to treatment. Treatment calls for correction of the primary cause and for support of the efforts of the organism to maintain a normal pH in the blood.

Clinical and Experimental Studies of Cocarboxylase Action in Thyrotoxicoses. A. Picco and G. Dogliotti. Minerva med. **45**:1015-1022 (April 14) 1954 (In Italian) [Turin, Italy].

Intramuscular injections of 1 mg. of thyrotoxin daily for 10 days to a group of rabbits produced increased blood levels of sugar and pyruvic acid together with lesions in the parenchyma of the liver and the thyroid. The combined administration of thyrotoxin and cocarboxylase (Bioxilase) to another group of rabbits kept these values normal or almost normal and indicated that the co-enzyme inhibited the toxic action of thyrotoxin and had a protective action on both the liver and the thyroid gland. Picco and Dogliotti used cocarboxylase to treat 12 patients with thyrotoxicosis of various degrees. The blood pyruvic acid level was elevated in all of them. It ranged from 1.10 mg. per 100 cc. to 1.80 mg. per 100 cc. Four patients with classic symptoms of toxic diffuse goiter (Basedow's disease) had the highest levels. Most of the patients received two 50 mg. injections of cocarboxylase intramuscularly each day for ten days. After the treatment the pyruvic acid level was normal or almost normal. The basal metabolism rate dropped markedly; tachycardia decreased; the mean pressure became normal; and functional disorders, such as insomnia, hyperexcitability, and vasomotor attacks, improved. The eye symptoms remained unchanged. Four of these patients received the preparation preoperatively. All four improved and underwent the intervention without toxic manifestations or complications. In explaining the mechanism of action of cocarboxylase, the authors say that patients with thyrotoxicosis have a cocarboxylase deficiency. This is the result of the altered carbohydrate metabolism caused by the impairment of the hepatic parenchyma that is always present in these patients. This deficiency is evidenced by the pyruvemia and its return to normal after the administration of cocarboxylase. Besides restoring to normal the altered carbohydrate metabolism and protecting the liver, this co-enzyme has a beneficial effect on the thyroid tissue. Because of its particular tropism for nervous cells, it may also exert an indirect action on the activity of the gland.

Osteomatosis (Leontiasis Ossea): Hereditary Disease of Membranous Bone Formation Associated in One Family with Polyposis of the Colon. H. P. Plenk and E. J. Gardner. Radiology **62**:830-840 (June) 1954 [Syracuse, N. Y.].

A striking coincidence of polyposis of the colon and multiple osteomas was found in 6 living members of a family group of 64; 6 deceased members displayed a similar association of the two diseases. The facial and cranial bones were involved in this order of frequency: maxillae, mandible, ethmoids, sphenoids, frontal bone, parietal bone, and zygoma. The changes varied from localized, eburnated, well-defined tumors to diffuse alteration of the architecture of an entire bone. Bowing, thickening, and undulation of the cortex of long bones was observed in three cases. True cortical tumors of long bones appeared in one patient. The hereditary pattern of the two conditions, polyposis and osteomas, is suggestive of a single dominant gene's being responsible for both disorders. All tumors arose from bones that are solely or predominantly preformed in membranes. The changes in the long bones were confined to periosteal bone formation. These two observations suggest that a disturbance of membranous bone formation leading to neoplasia is the basis of this disease. The term "osteomatosis" is suggested as preferable to leontiasis ossea, since it describes the condition more accurately and emphasizes the similarity to polyposis of the colon.

Thomson's Syndrome (Poikiloderma Congenitale). G. B. Sexton. Canad. M. A. J. **70**:662-665 (June) 1954 [Toronto, Canada].

The occurrence of Thomson's disease (poikiloderma congenitale) is reported in five children between the ages of 3 and 10 and in a 36-year-old man. The first two children were sisters who had four other siblings who were normal. The parents of these two patients were third cousins, second generation descendants from ancestors born in Alsace and Lorraine, and appeared to be in excellent health. The third child patient was a boy, an only child and born two weeks prematurely. The last two children were brothers; one of the two had a normal twin brother. The ancestors of the father of the last two children were Americans, but the mother traced her ancestors back to Alsace and Lorraine. The five children and the one adult patient had all the features of Thomson's syndrome, namely: development of lesions in early infancy on the traumatic areas of predilection (face and arms) with telangiectasia, pigmentation and fine atrophy, scant hair, loss of eyebrows, hyperkeratotic changes, and bone deformities. Bilateral cataracts developed at the age of 5 in three patients. The three others have yet to pass the age of incidence for the onset. The additional features of a transient phase of sensitivity to sunlight with bullous formation, small stature, stubby fingers, and consanguinity, only added to the complexity of the syndrome. A familial aspect was observed in three of the families involved. The author's adult patient had, in addition to the basic features of Thomson's disease, hypothyroidism and elevated 17-ketosteroids with infantile testicular development and sterility. The almost complete absence of sweat glands and hair follicles with dystrophy of the large toe nails could conceivably place this patient in the congenital ectodermal group. Failure to utilize vitamin A suggested a vitamin A deficiency on a metabolic base. These observations seem to enhance the assumption of Carleton that one has to deal with a single complicated syndrome that may vary from the full-blown complexity described in Bloch's case, progressing through the less severe stages described by Rothmund and Seefelder and likewise observed in the children reported on by the author, to the simplest form as recorded by

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The place of publication of the periodicals appears in brackets preceding each abstract.

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Thomson. Sex predilection in favor of the female has been reduced with the addition of the author's patients, and may be proved not to exist. The term Thomson's syndrome with the appendix poikiloderma congenitale would preserve the fundamental features originally described by Sidney Thomson and allow the inclusion of any variants herein described or subsequently to be reported.

SURGERY

The Problem of Massive Gastro-Intestinal Hemorrhage from an Undetermined Source. H. K. Gray, W. C. Shands and C. Thuringer. Ann. Surg. **139:**731-737 (June) 1954 [Philadelphia].

Differences of opinion in regard to the management of patients with indeterminate gastrointestinal bleeding at the time of laparotomy led to a review of 48 such patients operated on at the Mayo Clinic during the 10 year period from 1937 through 1946. Those in whom the results of abdominal exploration proved normal or in whom a surgical procedure other than one on the gastrointestinal tract was performed constituted one group (series A) and those subjected to partial gastric resection when careful examination of the stomach, esophageal hiatus, duodenum, and small intestine failed to show the source of the bleeding constituted another (series B). Follow-up showed recurrence of massive hemorrhage within five years in 63% of the 28 patients in series A as compared with recurrence in only 11% of those in series B. Analysis of factors relating to the number of preoperative hemorrhagic episodes and the age of the patients indicated that, unless a partial gastrectomy is performed, bleeding is more apt to recur in the younger patients than in the older ones. Laboratory examination of the removed portion of the stomach and in some instances a small rim of duodenum revealed a definite lesion from which the hemorrhage might have started in 8 of the 20 specimens. These lesions consisted of a small, active gastric ulcer in four, a duodenal ulcer in one, chronic gastritis with areas of mucosal ulceration and hemorrhagic areas, noted by the pathologist, in two, and a healed gastric ulcer in one. Varying degrees of chronic gastritis were found in the other 12 specimens, but in none was it possible to incriminate a specific area as the possible site of the hemorrhage. Partial gastrectomy seems, however, to be fully justified when the source of massive gastrointestinal hemorrhage cannot be determined at the time of operation.

Frozen Homogenous Bone Grafts: Study of 620 Patients Treated with Bone Bank Material. A. Sicard and R. Mouly. Presse méd. **62:**865-866 (June 5) 1954 (In French) [Paris, France].

Frozen homogenous bone grafts, though inferior to fresh autogenous ones, can be used successfully in so many operative procedures, some of which would be impossible without them, that the establishment of bone banks may be considered essential to the future of orthopedic surgery. Evaluation of the results obtained in 527 patients with a follow-up of from six months to five years showed that fusion of the frozen homogenous grafts with the bony tissues of the host was complete in 414, while in 113 it was either not secured or was only partial. Partial fusion of the graft in lumbosacral arthrodesis, however, though considered a failure from the biological point of view, was often sufficient to restore function and, therefore, might have been considered clinically successful. The percentage of failures for the series as a whole was disproportionately increased by the large number of patients subjected to this procedure (321), which, regardless of the technique employed or the material used, is probably followed by more failures than any other ankylosing operation. Failures in all other cases (206) amounted to only 14%. Tolerance for the frozen homogenous bone was excellent, except for local postoperative complications in 22 patients (3.5%), in 21 of whom the graft failed. Radiological examination shows that while fusion begins to be evident in fresh autogenous grafts by the end of the second or during the third month, it does not appear in frozen grafts until the fifth or sixth month. A longer period of postoperative immobilization is therefore required when frozen grafts are used. This delay in fusion and the fact that osseous proliferation is less pronounced with frozen than with fresh grafts make the use of frozen grafts a method of necessity rather than of principle; when they are used with due regard to their limitations, however, the service they render is invaluable.

PEDIATRICS

Conditions Mistaken for Leukemia in Children. S. D. Mills. Minnesota Med. **37:**444-447 (June) 1954 [St. Paul].

Mills reviewed the records of 44 children who were seen at the Mayo Clinic in the years 1949 to 1952 inclusive and who were suspected of having leukemia but who were proved to have some other condition that was responsible for the findings suggestive of this disease. All but four of this group of children were less than 5 years of age and most were 2 years of age or less. The majority of the children had an acute infection to which their blood reacted with an unusual increase in total leukocytes or lymphocytes or both. This is the so-called leukemoid reaction, which is familiar to the hematologist and the internist and which occurs in certain infections, intoxications, malignant disease, and severe hemorrhage. Pertussis may cause a high leukocyte count with a predominance of lymphocytes, and this infection was found in four children. Others had infections of the respiratory, intestinal, and urinary tracts or evidence of sepsis. Five children had infectious mononucleosis, which may easily be confused with leukemia because of the enlarged liver, spleen, and lymph nodes and because of the lymphocytic increase in the blood. Study of the peripheral blood smear for atypical lymphocytes of Downey and the presence of a high heterophil titer established the true diagnosis in these cases. Two children had "acute benign lymphocytosis," which was characterized by elevated leukocyte and lymphocyte counts. Of four children with chronic illnesses and blood changes suggestive of leukemia, one had rheumatoid arthritis, one had cortical hyperostosis, and the other two had chronic disorders of the skin. Six children had anemia classified as nutritional. All drank milk to the exclusion of meat, eggs, cereals, vegetables, and fruits. Two children with enlarged livers were found to have a hepatoma and a granuloma of the liver, respectively. In the children with miscellaneous conditions, there was one child with acquired hemolytic anemia, one with bleeding from the intestines, one with a granulocytopenia and relative lymphocytosis resulting from the toxic reaction to an antibiotic drug, one whose mother feared leukemia because he bled from the site of a penicillin injection, and one girl with a brain tumor. Other conditions that may be mistaken for leukemia in children include: (1) the collagen diseases, such as rheumatic fever, and infections such as typhoid fever, osteomyelitis, congenital syphilis, viral diseases, and fungous infections; (2) malignant neoplasms, such as neuroblastoma, with metastasis to bone; and (3) intoxications, such as poisoning from heavy metals. The author stresses that in a young child one must be exceedingly cautious in making a diagnosis of leukemia because of the extreme lability of the blood of young children in response to certain acute or chronic illnesses, intoxications, malignant diseases, and severe hemorrhage.

Myasthenia Gravis in Early Childhood. D. Macrae. Pediatrics **13:**511-520 (June) 1954 [Springfield, Ill.].

Four cases of myasthenia gravis in early childhood are reported. One case was congenital; no fetal movement was exhibited, suggesting that the myasthenia had an intrauterine onset. The mother of this child had hyperthyroidism. One of the patients had a sister and possibly other siblings affected with myasthenia gravis. From the published accounts it appears that a familial history of myasthenia is considerably more prevalent in children than in adults. It is, however, concluded that a genetic factor is not involved, but that unknown environmental factors are operative. Two patients showed severe exacerbations during intercurrent infections; one of these was in complete remission between infections. The manner in which an infection results in an exacerbation is not clear. The myasthenic-like state temporarily affecting some children of myasthenic mothers is discussed in relation to myasthenia. It is concluded that the defect in myoneural transmission in myasthenia gravis is the effect of a circulating substance whose nature, source, and mode of action are obscure but that appears to be continuously or intermittently

secreted. The hypothesis is advanced that this substance passes into a defective placenta but not into a normal one; this would account for myasthenic mothers having both normal and myasthenic children. While myasthenia gravis is a rare disorder, it is becoming increasingly apparent that its incidence in early childhood is considerably higher than previously suspected. Its diagnosis in children is difficult mainly because the condition is not considered. The neostigmine test should be performed more frequently than it is, since it is a less serious investigative procedure than many others, e. g., ventriculography to determine the presence of a brain tumor.

UROLOGY

Combined Electrolyte Therapy in Advanced Renal Disease Manifested by Azotemia and Acidosis. R. A. Neubauer. Am. J. M. Sc. **227:**628-639 (June) 1954 [Philadelphia].

A combined electrolyte approach to the problem of uremia and acidosis consists of the administration of hypertonic sodium lactate, calcium salts, and occasionally potassium salts. Twenty patients—11 with chronic glomerulonephritis, 4 with chronic pyelonephritis, 2 with polycystic kidney disease, and 3 with hydronephrosis—were given this therapy, and all except one with glomerulonephritis showed varying degrees of improvement from slight to complete rehabilitation. The most significant chemical changes encountered were a fall in the blood urea nitrogen, a rise in the carbon dioxide combining power, and a reciprocal drop in the extracellular chloride level. It is felt that, when usually available measures fail to benefit the uremic patient, this regimen may be of value.

Multiple Renal Lithiasis in Children: Four Cases. L. D. Arrues. Sem. méd. **104:**719-722 (June 3) 1954 (in Spanish) [Buenos Aires, Argentina].

Renal lithiasis in children is rare. The author reports four cases. A boy 10 years old had an occasional mild attack of pyuria and hematuria for four years. For the last two years he complained of occasional pain in the renal region, which radiated to the back on the same side. Three weeks prior to the observation, the patient had a severe attack of acute pain, vomiting, and intestinal upset that subsided after the attack. The patient was pale and was losing weight. A roentgen examination showed a normal gallbladder and several calculi in the pelvis of the kidney. Simple radiography and excretion urography revealed 12 calculi in the pelvis of the right kidney and 3 in the lower calyx, and a greatly dilated renal pelvis. The operation consisted of a posterior pyelotomy and removal of the calculi. Antibiotics were given to the patient after the operation. No complications followed. Chemical examination of the calculi showed phosphatic lithiasis. Roentgenography one month after the operation showed no more renal calculi. The pelvis was still greatly dilated. The author believes that the calculi were formed because of stagnation of the urine caused by the dilatation of the renal pelvis due to the adhesion of the upper part of the ureter.

THERAPEUTICS

Long-Term Cortisone Therapy in Rheumatoid Arthritis. F. W. B. Hurlburt and C. E. G. Robinson. Canad. M. A. J. **70:**645-650 (June) 1954 [Toronto, Canada].

Of 39 patients between the ages of 20 and 60 years with rheumatoid arthritis treated with cortisone, 27 were started on an intermittent regimen and the remaining 12 were given cortisone continuously. Six of the 27 were changed to continuous maintenance dosage, usually after a minimum period of 8 to 12 months of intermittent administration of the hormone, and were included in both groups. In the early stages of the continuously treated series, cortisone was given in initial doses of 100 to 150 mg. per day and then gradually tapered down to maintenance doses. As more experience was gained, patients were started on lower doses, usually between 75 and 100 mg. Maintenance doses of 50 to 75 mg. daily were usually adequate, although occasionally higher doses were given for short periods in an effort to suppress exacerbations of the disease. Thus, in the continuous therapy group, the average dose of cortisone given per month varied from a maximum of 2.38 gm. to 1.33 gm. Of the 18 patients treated continuously, 2 received cortisone for 3 and 5 months respectively; 7 for 6 to 12 months; 5 for 12 to 24 months; and 4 for 24 to 28 months. In the intermittently treated series, an initial course was given in a sufficient daily dosage (usually 75 to 100 mg.) and over a sufficient period of time to achieve a maximal suppression of the disease process. The total dose of cortisone required was 3 to 4 gm. Booster courses were instituted whenever a recurrence of activity of the disease so indicated. These courses usually consisted of 0.5 to 2 gm. at daily doses of 75 to 100 mg. Of the 27 patients treated intermittently, 18 received cortisone intermittently for 13 to 25 months, and 9 were given cortisone intermittently for 4 to 11 months. According to the criteria of the American Rheumatism Association used in assessing the response to therapy, only 1 of the 18 continuously treated patients achieved a grade 1 response, 3 a grade 2 response, 12 a grade 3 response, and 2 a grade 4 response. Of the 27 patients in the intermittently treated group, none had a grade 1 response, 9 had a grade 2 response (major improvement), 7 had a grade 3 response (minor improvement), and no improvement or increased severity of the disease (grade 4 response) occurred in 11 patients. Although results, as judged by classification of the American Rheumatism Association, thus were disappointing, this does not reflect the over-all symptomatic response, and partial or complete rehabilitation was achieved in a significant number of patients as follows: The number of 24 unemployable patients before the institution of treatment was reduced to 6. The number of employed persons increased from 3 full-time and 6 part-time employees before therapy to 15 full-time and 12 part-time employees after therapy. There seems to be merit in either continuous or intermittent therapy in different persons. With proper selection of cases and adequate supervision, the incidence of major complications is not sufficient to render prolonged cortisone therapy dangerous. In the authors' patients, apart from varying degrees of fluid retention, psychological abnormalities were the most significant complications and these usually can be avoided by proper selection of patients.

Cortisone in Treatment of Female Pseudohermaphroditism. C. Andreoli. Minerva med. **45:**1117-1128 (April 25) 1954 (In Italian) [Turin, Italy].

A diagnosis of pseudohermaphroditism due to congenital hyperplasia of the adrenal cortex was made in a 12-year-old girl who was admitted to the gynecologic clinic of the University of Turin. Besides the characteristic signs of the condition, the patient had hypertension (this had been present for at least three years) with values of 140/85 mm. Hg. The excretion of 17-ketosteroids was 19.7 mg. Celioscopy indicated the internal sexual organs to be definitely hypoplasic; these findings were confirmed several days later during an appendectomy. Some time after the operation, cortisone therapy was instituted. One intramuscular injection of 30 mg. daily brought the excretion of 17-ketosteroids to normal in about 10 days, but it rose to above the initial level when the same dosage was given every other day. When it was increased to 75 mg. every other day, the 17-ketosteroid excretion returned to normal. It was then maintained at a level of 8 mg. per day with a maintenance dose of 50 mg. every other day. The behavior of the 17-ketosteroid excretion following administration of cortisone established that the patient's condition was caused by hyperplasia of the adrenal cortex rather than by a tumor. Had it been caused by the latter, cortisone would have been ineffective. The arterial pressure dropped after a few days and remained normal for the entire six months of therapy. The patient tolerated the therapy well, and there were no side-effects. The breasts developed; hirsutism decreased, especially on the cheeks, upper lip, and legs; and menstruation occurred with a normal flow. However, the enlarged clitoris and the voice were not changed. Although cortisone does not cure pseudohermaphroditism because its discontinuance is followed by a return of the adrenal cortex to the initial condition, it inhibits the increased pituitary secretion of corticotropin (ACTH) and therefore is the treatment of choice for this condition.

Death from Corticotrophin. B. H. R. Hill and P. D. Swinburn. Lancet **1**:1218-1219 (June 12) 1954 [London, England].

An immediate anaphylactoid reaction to bovine corticotropin (ACTH), which was fatal, is reported. The reaction must be considered to be nonspecific, on the evidence given by passive-transfer skin tests. A reaction after a long course of porcine corticotropin nine months earlier was undoubtedly due to anaphylaxis. Neither previous history nor direct scratch skin tests in the patient elicited any hypersensitivity to pork or beef. Death was the result of prolonged cerebral anoxia produced by the anaphylactoid state and associated circulatory collapse of 25 minutes' duration. There were no clinical signs of urticaria, angioneurotic edema, or bronchospasm before or during the anaphylactoid reaction. Necropsy findings indicated that death was directly due to anaphylactoid shock.

Treatment of Hepatitis with Infusions of Ascorbic Acid: Comparison with Other Therapies. H. Baur and H. Staub. Schweiz. med. Wchnschr. **84**:595-597 (May 22) 1954 (In German) [Basel, Switzerland].

Daily intravenous infusions of 10 gm. of ascorbic acid in 1,000 cc. of isotonic sodium chloride solution were given for five days on the average to 11 patients with infectious hepatitis admitted to the medical clinic of the University of Basel between 1951 and 1952. The serum bilirubin decreased rapidly, diuresis and body weight increased simultaneously, the time of urinary excretion of bilirubin, urobilin, and urobilinogen was reduced, and the duration of dysproteinemia and of the illness was shortened. There were no undesirable side-effects. These results compared favorably with those obtained in 195 patients with infectious hepatitis who between 1947 and 1953 were treated by other methods. Of the 195 patients, 31 received 5 units of insulin subcutaneously twice daily and 50 gm. of dextrose orally, 10 were given 20 gm. of fructose (levulose) orally three times, 83 were given total vitamin preparations orally or intramuscularly, and 12 received chlortetracycline (Aureomycin), cholagogue, cholic acid, methenamine, methionine, and choline. One month was the average duration of treatment in these 136 patients. The remaining 59 patients were given daily infusions of isotonic solution of three chlorides (Ringer's solution) or isotonic sodium chloride solution with or without addition of fructose and vitamin preparations for two to three weeks. It is suggested that in addition to the virucidal effect exerted by the ascorbic acid, direct improvement of the liver function, a favorable influence on the inflammatory tissue reaction, detoxification resulting from reversible oxidizability of the ascorbic acid, improved function of the adrenal cortex, and increased diuresis may be responsible for the highly satisfactory results obtained with the ascorbic acid infusions. The increase in the patients' weight after about five infusions with ascorbic acid was striking. The primary loss of weight of the patients treated with infusions without the addition of ascorbic acid may be held against a purely diuretic effect of the ascorbic acid. Shifting of the redox potential to the negative side, prevention of splitting of the porphyrin ring to the chain-molecule of bilirubin and the resultant reduced formation of bilirubin may also play a part in the mechanism of the effect of ascorbic acid.

Advantages Derived from the Synergisms Between Hormones and Vitamins. M. Matteini. Minerva med. **45**:1066-1068 (April 18) 1954 (In Italian) [Turin, Italy].

Suppositories of Vitacryn, a preparation containing 2.5 mg. of desoxycorticosterone acetate, 5 mg. of testosterone propionate, 20 mg. of vitamin E, 50 mg. of vitamin C, 4 mg. of vitamin A, 5 mg. of vitamin B_1, and 2 mg. of vitamin B_2, were used to treat four patients in poor general condition, asthenic, extremely thin, and anorexic. Three had also low blood pressure. The same preparation was given to six boys, between the ages of 8 and 15 years, who were constitutionally thin and delicate and in whom development of the sexual organs was retarded. It was given by the rectal route to some of the patients every day and to others every other day for a total of from 10 to 20 suppositories. Patients with hypertension, or a tendency to it, with arteriosclerosis even in the initial stage, and with edema were not included in the study. The treatment had a beneficial effect in both the old and the young group of patients. In the former, the general condition was improved with restoration of the neuropsychic tone, gain in body weight (one gained 8 kg.), and rise in blood pressure. In the latter, the general condition improved, body weight increased, and muscle development and growth of the sexual organs were influenced. The author ascribes these good effects to the synergistic action that occurs between the components of the preparation, namely, between desoxycorticosterone and the vitamins, and testosterone and the vitamines. In addition, these synergisms are potentiated by that which occurs between testosterone and desoxycorticosterone.

Intravenous Procaine Amide in the Treatment of Cardiac Arrhythmias. L. R. Pascale, L. M. Bernstein, H. M. Schoolman and E. F. Foley. Am. Heart J. **48**:110-122 (July) 1954 [St. Louis].

Procaine amide (Pronestyl) was given intravenously to 34 patients between the ages of 21 and 80 with 41 episodes of paroxysmal tachycardia. The drug was administered at a maximal rate of 100 mg. per minute, but no arbitrary limit was set for the total dosage. The limitation of the total dose was determined by the electrocardiographic and clinical response of the patients. The electrocardiogram was under continuous observation, and tracings were recorded after the administration of each 100 mg. of procaine amide. Twelve patients had 13 episodes of supraventricular tachycardia, 8 had 8 episodes of auricular flutter, and 14 had 20 episodes of ventricular tachycardia. Procaine amide was effective in 10 (77%) of the 13 episodes of supraventricular (auricular or nodal) tachycardia. Seven of these 10 were converted to sinus rhythm with 500 mg. or less of the drug, the other three requiring doses of 800, 1,000 and 1,400 mg. Procaine amide in doses ranging from 700 to 3,000 mg. was ineffective in terminating the eight episodes of auricular flutter. In all of the 20 episodes of ventricular tachycardia the ectopic focus was suppressed with procaine amide in doses ranging from 300 to 2,500 mg. Hypotension and widening of the QRS complex were noted. Hypotension was controlled by infusions of levarterenol (*l*-nor-epinephrine). Convulsions and death occurred after procaine amide therapy in one patient with auricular flutter. Intravenously administered procaine amide has no place in the treatment of this arrhythmia because of the failure to convert the auricular flutter and the danger of sudden deleterious increases of ventricular rate. Procaine amide is an excellent agent in the treatment of paroxysmal ventricular tachycardia. Much larger doses than the usually recommended 1,000 mg. of the drug may be necessary to terminate the tachycardia, and this may be accomplished by the use of levarterenol to correct hypotension as it occurs.

Experimental Use of Methyl-3-Chromone as Basic Treatment of Angina Pectoris. P. Soulié, P. Chiche, J. Carlotti and J. Baillet. Presse méd. **62**:847-849 (June 2) 1954 (In French) [Paris, France].

The authors treated 45 patients who had angina pectoris with methyl-3-chromone. Each patient was given a placebo for 10 days before treatment with the drug was started. Improvement occurred in 22.2% of the patients during the period of placebo administration. Since the over-all amelioration was 71%, it appears that methyl-3-chromone can benefit 50% of patients with angina pectoris. In almost every case of improvement during drug therapy, the result was checked by a second period of placebo administration during which the patient's condition deteriorated. It appears that patients react differently to methyl-3-chromone depending on whether their reactions to the effort test are positive or negative. Of 16 patients whose reactions were positive, only 31% were improved by the drug, as against 58% of 29 patients whose reactions were negative. With the dosage employed (0.1 gm. given three or four times a day), one case of drug fever with an itching skin rash was encountered, which cleared up immediately the drug was stopped. A common side-effect of methyl-3-chromone was nervousness and insomnia; this was easily controlled by moderate doses of phenobarbital. The authors observed no toxic manifestations in the blood or kidneys.

Treatment of Hypertensive Emergencies: Use of Veriloid-in-Oil Intramuscularly. R. V. Ford, W. R. Livesay, C. Spurr and J. H. Moyer. Am. Heart J. **48**:123-129 (July) 1954 [St. Louis].

The authors administered intramuscularly alkavervir (Veriloid) in oil to 24 patients between the ages of 34 and 58 with hypertension. The initial dose of the drug was arbitrarily selected as 2 mg. in most patients and the subsequent doses were adjusted upward in 2 mg. increments until a blood pressure response was observed. Then 0.5 mg. increments were used until an optimal blood pressure response was obtained. The initial doses were usually administered at 24 hour intervals. It was necessary to use atropine in a few patients to combat excessive bradycardia, and in several patients phenylephrine (Neo-Synephrine) hydrochloride or arterenol (nor-epinephrine) were used because of excessive reduction in blood pressure. A satisfactory hypotensive response to an optimal dose, i. e., a reduction of the recumbent blood pressure to 150 mm. Hg systolic and 100 mm. Hg diastolic without prohibitive side-reactions, was nearly always obtained in patients who received an optimal dose of alkavervir in oil intramuscularly. The optimal dose of the drug varied from 1.5 mg. to 7 mg. with an average of 3.5 mg. The average onset of action was 114 minutes, and the average duration of action was 366 minutes. Symptoms of hypertensive crisis were improved in 13 of the 24 patients and were unchanged in the remainder of the patients. There was no evidence of insufficiency in the cerebral or coronary circulation associated with the reduction of the blood pressure. One patient received a suboptimal dose and died before the use of a clinically effective dose. Two patients with uremia showed progression of the renal insufficiency as the blood pressure was reduced and one of them died. Thus, the results with alkavervir in oil given intramuscularly were quite similar to those obtained with intramuscular aqueous alkavervir except that the duration of action was longer with the depot-type form, necessitating less frequent administration. Since nausea and vomiting are the most frequent distressing side-reactions to alkavervir in any form, and, since these occur predominantly during the acute phase of blood pressure reduction immediately after the drug administration, it is only reasonable that a slower and longer-acting form of alkavervir would be associated with less nausea and vomiting. Both aqueous and depot alkavervir have the disadvantage of a less consistent and reproducible effect than does intravenous alkavervir which, however, has the distinct disadvantage of requiring constant supervision of the infusion rate. It is, therefore, recommended that the patient with a hypertensive crisis, in the absence of constant supervision, receive intramuscular injections of alkavervir in oil at 12-hour intervals, beginning with 2 mg. and adjusting the dose upward or downward with 0.5 mg. increments until an optimal dose has been established. Once this dose has been achieved, the time interval may be adjusted to give maximum hypotensive coverage, remembering the latent period between administration of the drug and onset of its effect.

Reserpine (Serpasil) in the Treatment of Hypertension. W. Hughes, E. Dennis, R. McConn and others. Am. J. M. Sc. **228**:21-35 (July) 1954 [Philadelphia].

Reserpine (Serpasil), a pure alkaloid of Rauwolfia serpentina was given orally to 62 unselected ambulatory patients with mild to severe hypertension. The initial dose of reserpine was usually 1 to 2 mg. per day given in divided doses after each meal and at bedtime. If excessive sedation occurred, the dose was temporarily decreased, and after several weeks it was again increased to the previous level. If no reduction of blood pressure was observed after two weeks, the dose of reserpine was progressively increased until as much as 1.5 mg. was given four times daily (or a total of 6 mg. daily) to some patients in an effort to obtain maximum effectiveness. The patients were treated for 1 to 7 months. They were divided in two groups, one of which comprised 34 patients with an average diastolic pressure of more than 120 mm. Hg before the start of the treatment, and the other comprised 28 patients with an average diastolic pressure of more than 100 but less than 120 mm. Hg. Approximately half of the patients treated obtained a significant reduction in blood pressure. All but two of the patients who became normotensive were from the group of patients with less severe hypertension. The patients who were treated for one to two months obtained just as good results as those who received the drug for two to seven months. There were no serious side-effects. Doses of 1 to 3 mg. of reserpine in 100 cc. of 5% dextrose in distilled water were administered intravenously to 17 patients. Thirteen of these patients demonstrated a significant reduction in blood pressure about one to four hours after administration of the drug, and half of them became normotensive. Although reserpine had a prominent sedative effect on the authors' patients, this effect diminished or disappeared after prolonged therapy without a concomitant increase in blood pressure; some patients showed a significant blood pressure response without sedation. Reserpine, therefore, appears to lower the blood pressure through actions other than those related to its sedative properties. There was little difference between reserpine and extracts of Rauwolfia serpentina containing multiple alkaloids when compared as to side-effects and blood pressure reduction in patients with hypertension.

Paradoxical Hormone Therapy of Mammary Carcinoma and Its Recurrences. W. Evers. Zentralbl. Gynäk. **76**:268-274 (No. 7) 1954 (In German) [Leipzig, Germany].

Of 98 patients with mammary carcinoma, 80 were in stages 1 and 2 according to Steinthal's classification, 12 were in stage 3, and 6 patients had metastases after radical surgical intervention. Fifty of the 80 patients underwent radical surgery followed by roentgen irradiation and additional treatment with male hormones; the remaining 30 patients underwent radical surgery followed by roentgen irradiation but were not given hormone therapy. The total dose of testosterone propionate was 3,000 mg. on an average, given in doses of 100 mg. three times per week. The duration of treatment varied from 2½ to 3 months. Of the 50 patients who received hormone therapy, 6 (12%) had metastases within one year. Of the 30 patients who did not receive hormone therapy, 10 (33.3%) had metastases within one year. Of 30 patients in Steinthal's stage 1, who received hormone therapy, 29 (96.6%) were still alive after three years. Of the 15 women in Steinthal's stage 1 who did not receive hormone therapy, 13 (86.6%) were still alive after three years. Of 20 patients in Steinthal's stage 2 who received hormone therapy, 17 (85%) were still alive after three years, while only 10 (66.6%) of 15 women who did not receive hormone therapy, survived for three years. All 12 patients in Steinthal's stage 3 were subjected to radical surgery followed by roentgen irradiation and additional hormone therapy. Six (50%) of the 12 women were still alive after three years. Only 25% of patients in stage 3 who did not receive additional hormone therapy and were reported on in another of the author's papers, were alive three years after the radical operation. Subjective and objective improvement resulted from treatment with opposite sex hormone in the six patients who were treated for metastases after radical surgery. Of the undesirable side-effects of treatment with male hormones in large doses for prolonged periods, masculinization (hirsutism and deepening of voice) was most frequent; edema occurred in 14 (20.5%) of the 68 patients who received hormone therapy, and 3 (4.4%) had hypercalcemia. Nine of the 14 patients with edema were placed on a salt-free diet and given diuretics, and hormone treatment did have to be discontinued, while in the remaining 5 discontinuation was necessary. Nausea and vomiting occurred frequently at the start of the hormone therapy but subsided again in most patients. Hormone treatment causes a hormonal change in the organism and may be used as an adjuvant to radical surgical intervention and roentgen irradiation in patients with mammary carcinoma. In the presence of extensive metastases of bone or soft tissues, particularly in the presence of metastases in the lungs, hormone therapy may be preferred as primary treatment.

Compounds E and F, and ACTH in the Management of Idiopathic Thrombocytopenic Purpura. C. J. D. Zarafonetis, W. A. Steiger and S. K. Cary. Am. J. M. Sc. **228**:1-15 (July) 1954 [Philadelphia].

Two male and nine female patients between the ages of 14 and 78 years with idiopathic thrombocytopenic purpura were treated with cortisone, hydrocortisone, and corticotropin. Hydrocortisone was administered orally except in one patient in whom the initial trial of this drug was conducted using parenteral

injection for comparative purposes. Two patients received cortisone parenterally on one occasion each. Corticotropin was given parenterally during the operative period to three of four patients undergoing splenectomy, in order to stimulate adrenal cortical function and nullify the suppressive effect of previous hydrocortisone or cortisone therapy. Two patients with partial platelet response to orally administered hydrocortisone also received courses of corticotropin. Two additional patients received small doses of corticotropin at the termination of courses of oral steroid therapy. A rise in the number of platelets was not uniformly elicited. Three patients, two of whom received cortisone and one hydrocortisone, had little or no platelet response to the treatment, and were subjected to splenectomy. One of these patients appeared to be cured by the operation, a second had a suboptimal platelet remission, while the third had an ephemeral rise in platelets followed by pronounced thrombocytopenia. A fourth patient who had temporary platelet remisssions on cortisone and hydrocortisone therapy also appears to have been cured by splenectomy. Of the remaining seven patients, two appeared cured and in two the result is still uncertain; all four of these patients received only a single course of hydrocortisone orally. Three other patients received a total of eight courses of steroid therapy. Platelet remissions were induced on each occasion, but gradual relapse occurred following cessation of therapy. These patients may ultimately be subjected to splenectomy. Temporary or permanent platelet remissions thus were observed in 8 of the 11 patients. Clinical bleeding was controlled and capillary resistance uniformly improved by steroid therapy. There appeared to be no qualitative difference between the results achieved with hydrocortisone given orally and those obtained with cortisone. Persistently positive serologic tests for syphilis were obtained in two patients. These were shown to be false-positive through use of the treponema immobilization test. The steroids are ideally suited to the emergency treatment of idiopathic thrombocytopenic purpura. If splenectomy is deemed necessary, preoperative preparation with steroid therapy minimizes the risks associated with surgical intervention. Such therapy was continued for several days after the operation and no difficulty with wound healing occurred. Properly controlled treatment with cortisone, hydrocortisone, or corticotropin, initiated at the time of diagnosis, constitutes a conservative approach to the treatment of idiopathic thrombocytopenic purpura and is to be considered more conservative than a program of watchful waiting.

Uncommon Side-Effects Secondary to Streptomycin Therapy. G. Mechetti. Riv. pat. e clin. tuberc. **27:**97-100 (March-April) 1954 (In Italian) [Bologna, Italy].

Mechetti observed the occurrence of bronchial asthma and herpes simplex in two tuberculous patients who were receiving streptomycin. Both patients had a chronic form of pulmonary tuberculosis, and clinical and laboratory tests indicated that the hepatic function was altered. The side-effects became manifest in the first patient three to four days after the beginning of therapy. *p*-Acetylaminosalicylic acid (APAS) was then given instead, and the herpetic and asthmatic manifestations disappeared gradually in 7 to 10 days. The side-effects appeared after six to seven days of therapy in the second patient who five months previously had tolerated well a total of 15 gm. of streptomycin. The use of the antibiotic was discontinued, and she was given pyrilamine (Neo-Antergan) maleate and vitamin PP therapy. After this, streptomycin administration was resumed and was carried out for 30 days with no untoward effects. Side-effects secondary to streptomycin therapy have been attributed to the toxicity of the drug, its impurities, its allergenic activity, or to a particular local and general reactivity of the patient to the drug. Mechetti believes that in his two patients the bronchial asthma was due to a varied nonallergic reactivity of the patients to the drug, and, from this, signs and syndromes clinically similar to those caused by allergic reactions developed. The herpetic manifestations were a direct consequence of the asthma attacks. These might have mobilized and rendered virulent the herpes virus that was latent in the internal organs.

PATHOLOGY

Giant Osteoid Osteoma. D. C. Dahlin and E. W. Johnson. J. Bone & Joint Surg. **36A:**559-572 (June) 1954 [[Boston].

The term "giant osteoid osteoma" is suggested by the authors for an unusual and microscopically characteristic tumor that was observed in 11 of about 2,000 cases of primary tumor of bone in which a comprehensive study of pathological specimens was carried out at the Mayo Clinic. Of the 11 tumors, 4 involved thoracic and lumbar vertebrae, and in each of these a portion of the vertebral arch was destroyed and in 3 the vertebral body itself was affected. Five tumors were found in long bones, and various parts of the diaphysis of these long bones were involved. Of the remaining two tumors, one was in the upper fourth of the patella and the other had almost completely destroyed the talus. The tumors were characterized by a prominent network of osteoid trabeculae showing varying degrees of calcification and a vascular stroma that fairly frequently contained benign giant cells and little fibrous tissue. Because of their histological features the authors felt that these tumors most closely resembled osteoid osteomata, but the biological properties of restricted growth and the nonaggressiveness usually observed were lacking. The features that distinguished the authors' tumors from ordinary osteoid osteoma were the much greater size, more pronounced vascularity, more orderly pattern of larger osteoid trabeculae, a tendency to erode through the cortex, and the inconstancy of the surrounding bony sclerosis. Grossly these tumors were softer and more hemorrhagic than the usual osteoid osteoma. Of the 11 patients in whom the tumors occurred, there were 10 males and 1 female between 5 and 60 years old. All patients complained of pain in the region involved, and with few exceptions the pain was centered directly over the affected part. The duration of pain varied from three weeks to five years. After biopsy, 10 patients underwent operation for removal of a neoplastic mass by curettage. The 11th patient underwent amputation at the junction of the upper and middle thirds of the femur after biopsy and an erroneous diagnosis of sarcoma. Five patients were given a course of roentgen therapy after operation. The postoperative course of the patients indicated the benign nature of the lesions; the three most recently treated were well or improved at follow-up intervals of 12 months, 14 months, and 30 months, respectively. The other patients remained well for periods varying from 4 to 18 years.

Specificity of the L. E. Phenomenon. A. Leoni. Minerva med. **45:**1022-1027 (April 14) 1954 (In Italian) [Turin, Italy].

Leoni undertook this study to evaluate the specificity of the L. E. phenomenon for acute lupus erythematosus. To demonstrate the presence of this phenomenon in the blood of healthy persons, as well as in patients with various dermatoses (psoriasis, eczema, erythema exudativum multiforme, and dermatitis herpetiformis) and subacute and acute lupus erythematosus, he followed the procedure of the English authors Eppes and Ludovic. He also determined the presence of the phenomenon in the fluid drained from the pleura or abdomen of six patients with exudative pleurisy, three with hepatic cirrhosis, and one with polyserositis. He found the L. E. phenomenon in the blood of all the persons of the first group and in the fluid of three patients with exudative pleurisy, one with hepatic cirrhosis, and the one with polyserositis. On the basis of these findings, Leoni questions the specificity of the L. E. phenomenon for acute lupus erythematosus. Marmont and Haserick have stated that it is specific for this disease. Hargraves in 1949 said, "When L. E. cells are found in a disease other than lupus erythematosus the patient has both diseases." Leoni believes the phenomenon to be nonspecific in view of the fact that he and other authors found it in the blood of both healthy persons and patients with diseases other than lupus erythematosus. He also feels that in the past many authors have mistaken findings of erythrophagocytosis and other microscopic pictures for the L. E. phenomenon. This may be partly due to the fact that a precise definition of the L. E. phenomenon has not as yet been ad-

vanced. The only valuable feature that distinguishes the pseudo-L. E. cells from the true ones is the nuclear nature of the inclusion. This can be demonstrated only with Feulgen's reaction, and unfortunately very few authors have used this test. Although Leoni believes the L. E. phenomenon to be nonspecific for acute lupus erythematosus, he says that the mechanism of its formation may be specific for the disease. With the technique of the American authors Hargraves and Haserick, the L. E. phenomenon appears only, or more easily, in acute lupus erythematosus. Studies are now in progress to test the validity of this hypothesis.

A Serum Cold Precipitable Hemagglutinating Factor in Rheumatoid Arthritis. N. Svartz and K. Schlossmann. Acta med. scandinav. **149:**83-89 (No. 2) 1954 (In English) [Stockholm, Sweden].

A test common to all rheumatoid disorders would be of great value in the diagnosis of rheumatoid arthritis in its early stages or in atypical cases or in rheumatic disorders without articular symptoms, e. g., myositis. However, confusion exists in the matter of the practical applications of the hemagglutination test in rheumatoid arthritis. The authors' experiments prove that there is a correlation between a certain serum hemagglutinating factor and rheumatoid arthritis. Cold precipitable substances in the serum from patients with rheumatoid arthritis are capable of agglutinating sensitized sheep erythrocytes, and the test for this hemagglutinating factor is of diagnostic value, witness the fact that a hemagglutination titer of 1 in 16 or higher was found in 95 out of 100 patients with rheumatoid arthritis. The results of hemagglutination obtained with cold precipitates differ completely from those obtained with unfractionated serums. There exist in unfractionated serums several types of hemagglutinating substances. The same is true of serums fractionated in cold. The difference is that most of the serums that are capable of producing agglutination of sensitized sheep cells show a hemagglutinating factor only in the supernatant fluid, while in rheumatoid arthritis a hemagglutinating factor is to be found in the cold precipitate. No biological reaction is entirely specific to one disease; but the investigations here reported are the first through which the presence of a factor that may be considered nearly specific to rheumatoid arthritis has been demonstrated. In judging the test, it must be kept in mind that the agglutinating substance does not appear in the blood for at least two months.

Modifications of Islands of Langerhans Following Vitamin E Therapy. L. Barbieri and P. L. Esposti. Minerva med. **45:**1324-1326 (May 9) 1954 (In Italian) [Turin, Italy].

In an attempt to evaluate the action of vitamin E on the islands of Langerhans, histological studies were made of the pancreas of animals treated with the vitamin. This was administered to four groups of guinea pigs as follows: (1) intraperitoneally in doses of 100 mg. daily for 15 days; (2) intraperitoneally in doses of 50 mcg. every other day for 23 days; (3) intramuscularly in doses of 50 mg. every other day for 23 days; and (4) intraperitoneally in doses of 50 mcg. every other day for one month. At autopsy the pancreas appeared enlarged and slightly congested. Histological studies indicated that the islands of Langerhans were few in number and not too large. The number of A cells was increased, whereas that of B cells was greatly diminished. In the guinea pigs that had received 50 mg. of vitamin intramuscularly every other day for 23 days, the B cells had disappeared entirely or very few of them were present at the periphery. From their findings Barbieri and Esposti conclude, unlike other authors, that vitamin E does not potentiate or stimulate the production of the glycoregulatory pancreatic hormone. Had the vitamin acted by stimulating the production of insulin there would have been a more or less marked increase of B cells. The presence of an increased number of A cells instead suggests hypofunction of the gland. If vitamin E does exert a useful action in certain cases of diabetes, as some authors have reported, it may be because of its peripheral action on tissues and muscles whereby through a mechanism governing the oxidation-reduction process it may favor a better utilization of glucose by the muscle fiber cell.

The Pathology of Gastric Arteries, with Special Reference to Fatal Hæmorrhage from Peptic Ulcer. G. R. Osborn. Brit. J. Surg. **41:**585-594 (May) 1954 [Bristol, England].

The author studied the gastric arteries in 50 consecutive deaths from coronary thrombosis; in 45 subjects they were entirely normal. In only two were there arteriosclerotic lesions; the other three had small lesions of an inflammatory nature. It is stated that the gastric arteries at all ages are very nearly immune from the usual forms of arteriosclerosis. Arteriosclerosis cannot play any part in massive hemorrhage from peptic ulcer. No significant incidence of hypertension could be found in 26 deaths from hematemesis. In peptic ulceration the arteries may suffer chronic, acute, or subacute erosion. Chronic erosion prevents massive hemorrhage, whereas acute erosion is the typical lesion of fatal hemorrhage. The type of arterial erosion present and the course of the hemorrhage are determined by unknown factors that govern the rate of the ulcer process. A study of 8 cases of ulcer-cancer and 20 consecutive cases of gastric carcinoma revealed that chronic arterial erosion is quite common in carcinoma of the stomach. Its frequency varies in different types of carcinoma. Hemorrhagic shock must be controlled immediately, because of the danger of death from straight hemorrhage or delayed shock nephrosis. The old belief in "blowing off the clot" by transfusion is based on false pathological concepts. Acute erosion is almost certain to be fatal unless the patient is treated by subtotal gastrectomy, after adequate preparation, in the preuremic stage. There is no medical treatment for acute erosion. Many gastric ulcers with acute arterial erosion cannot be recognized at operation; this justifies blind subtotal gastrectomy. Duodenal ulcers that cannot be removed should be exteriorized to prevent recurrence of hemorrhage. One of the most striking features of the history of fatal cases is the absence of pain.

Serum Lipoprotein Stability in Atherosclerosis. L. Horlick. Circulation **10:**30-42 (July) 1954 [New York].

The simple and rapid method devised by Horlick for estimating the susceptibility of persons to atherosclerosis consists of measurements of stability of serum lipoproteins with the aid of a lecithinase turbity test. The alpha toxin of Clostridium welchii was used as a potent lecithinase that disrupts the serum lipoproteins, releasing the lipoids from their protein linkage. This reaction is associated with development of intense turbidity in the serum. There is evidence that the enzyme may more specifically attack the less stable classes of lipoproteins. The time taken for turbidity to occur, after enzyme and serum were incubated under standard conditions, varied widely in the serums of different persons. Turbidity tests and serum lipid determinations were carried out on the serums obtained from a group of 50 patients with coronary disease whose average age was 57.7 years, and from two groups of normal persons; one comprised 50 persons, whose average age was 50 years, and the other comprised 131 persons whose average age was 22 years. In 36 (72%) of the 50 patients with coronary disease, the turbidity occurred early, i. e., in less than 4.5 hours, while a similar phenomenon was observed in only 11 (22%) of the 50 normal persons of similar age who served as controls and in 28 (21%) of the 131 young normal persons. The early development of turbidity in the patients with coronary atherosclerosis as compared with that in the controls suggests that in the coronary group the lipoproteins are most amenable to disruption by lecithinase and possibly less stable than in the control groups. There was no real difference in the percentage of persons with early onset of turbidity between the older and younger controls despite a considerable difference in mean age of the two groups. The atherogenic process begins early in life, and it is not surprising, therefore, that a relatively high percentage of young people show evidence of "unstable lipoproteins." The degree of final turbidity correlated moderately well with the serum lipids as measured quantitatively. Final turbidity was higher in the coronary group (mean 67.55) than in the older control group (mean 60.99) and the younger control group (mean 50.23). Final turbidity estimation may be used as a screening technique for detecting persons with abnormal serum lipid levels. Early onset

of turbidity, and high final turbidity reading were present simultaneously in 32 (64%) of the 50 patients with coronary disease, in 7 (14%) of the 50 older control persons and in 8 (6%) of the 131 young control persons. The application of these criteria permits separation of persons with coronary atherosclerosis from a control population. The lecithinase turbidity test was not affected by storage of serum for seven to 10 days. Solutions of enzyme did not lose their potency for at least one month. Relatively stable values were obtained, when persons were retested for periods varying up to six months.

Behavior of Serum Iron in Various Diseases of Liver. E. R. Christian. A. M. A. Arch. Int. Med. **94**:22-33 (July) 1954 [Chicago].

The iron level was determined in 659 serums obtained from 313 persons. Of the 313 persons, 50 were normal hospital employees, 28 were patients without evidence of liver disease, 42 were persons with abnormal liver function tests due to undetermined causes, and 193 were patients with diseases of the liver, the exact nature of which was established in most cases by means of needle biopsy, laparotomy, or necropsy. Of the liver diseases studied, viral hepatitis caused significant elevation in the serum iron more consistently than did any other disease except hemochromatosis. Although random elevations of serum iron occurred later in the course of viral hepatitis, maximum elevation occurred during the third week of this disease. Before the third week values tended to fall within normal range or were not sufficiently elevated to be diagnostic. Values tended to return to normal after the eighth week of the disease. In viral hepatitis the serum iron roughly parallels the clinical course; i. e., it is high during the period of greatest morbidity and decreases as the patient improves. However, there is no constant correlation between serum iron and severity of the disease. Nor is there a constant correlation between serum iron and other hepatic function tests. In most diseases of the liver associated with jaundice (unless jaundice is caused by hemolysis) it is thought that pronounced elevation of serum iron is highly indicative of viral hepatitis, especially, if values are persistently elevated. The critical serum iron level in this respect is 300 mcg. per 100 cc. It should be noted, however, that significant elevations of serum iron are not unusual in other diseases of the liver, particularly various hepatitides, and the necrotizing phase of portal cirrhosis. As a result of his experience, the author states that the increase in serum iron is roughly proportional to the extent of hepatocellular damage. Determination of serum iron is of particular value in differentiating between viral hepatitis and extrahepatic biliary obstruction, especially during the phase when hepatitis exhibits obstructive phenomena. Determination of serum iron is not proposed as a hepatic function test of such specificity that a single value assumes diagnostic importance. Rather, it is proposed as an adjunct to other function tests and liver biopsy in the investigation of hepatocellular damage. In certain diagnostic situations it may have, however, greater specificity than either other function tests or biopsy.

RADIOLOGY

Renal Complications from Aortography. G. M. Miller, E. J. Wylie and F. Hinman Jr. Surgery **35**:885-896 (June) 1954 [St. Louis].

Damage to the kidney from translumbar aortography was observed in six men and one woman between the ages of 45 and 64. In three patients the damage was unilateral and resulted from direct trauma at the time of the aortography. Not only was the needle misdirected in each of the three cases, but the complicating factors of excessive injection pressure, large volumes of dye, and possible irritation by the contrast medium were also present. Pressure and volume are interrelated factors, with the medium causing damage by being forced out of the capillaries or by direct irritation because of high concentration. As a result, atrophy of the kidney occurred in one patient, and a second patient had a temporarily nonfunctioning kidney with severe hypertension that reverted spontaneously to normal within three months. High aortic block is particularly likely to dam back dye and promote renal damage. Bilateral indirect damage followed by reversible renal failure occurred after aortography in the remaining four patients. In three the two needle technique was used and over 60 cc. of dye injected. In the fourth patient, the gas-pressure machine was used; the patient appeared to have immediate parenchymal damage bilaterally. All four patients recovered completely after periods of oliguria of 10 to 11 days. Two of the four had evidence of iodopyracet (Diodrast) sensitivity; three of the four had at least 60 cc. of contrast mediums injected, and the fourth had 50 cc. injected under high pressure. Experiments made on dogs showed that high injection pressures caused interstitial extravasation of the contrast medium, leading to late renal fibrosis. Certain limitations in technique are advocated to insure against such damage after aortography. If the whole aortic tree must be filled, at least 50 cc. of dye is needed. To prevent excessive pressure, two smaller 17 or 18 gauge needles should be used, and the contrast medium should be injected by hand with two syringes. To avoid direct injection into the renal vessels, the needle tips should be angulated sharply upward so that they enter the aorta just below the diaphragm and 2 to 3 cm. above the renal vessels. Long needles are required. For urologic purposes the 25 cc. volume of contrast medium was found to be adequate. But since this quantity of dye injected directly into the renal artery, even by hand pressure, could be damaging, a scout film should be made after injection of 5 cc. of dye to determine the position of the tip of the nedle. It may then be moved should it lie within the lumen of the renal artery or mesenteric vessels or should there be extravasation. This precaution might have obviated the complications in at least three of the reported cases. These smaller volumes of contrast medium used to visualize just a segment of the aorta and the renal vascular tree can be conveniently injected with the aid of local anesthesia. The use of 70% sodium acetrizoate (Urokon), instead of 70% iodopyracet (Diodrast), as contrast medium may prevent a sudden movement by the patient from the "shock" of the injection.

Importance of Vascular Spasm in Study of Chronic Obliterating Diseases of Arteries. G. Cadili and V. Sommariva. Minerva chir. **9**:342-350 (April 30) 1954 (In Italian) [Turin, Italy].

Arteriograms of the peripheral circulatory system that were taken before intra-arterial injection of nicotinic acid (Nicotene) in 20 patients with thromboangiitis obliterans (Buerger's disease) and 8 with arteriosclerotic conditions were compared with those taken before the injection. For each arteriogram 5 cg. of nicotinic acid in 5 cc. of isotonic sodium chloride solution was injected into the artery slowly in three to four minutes. The arteriograms taken after the injection revealed changes in the circulatory system that those taken before the injection had failed to show. This was especially true of the arteriograms of patients in whom the process was of recent onset. The authors ascribe the differences in the arteriograms to the fact that the arterial spasm, which may sometimes cause the circulatory deficit and consequently the anatomic impairment, was temporarily eliminated by the drug. This technique reveals the vascular lesions in their true entity and therefore a more correct diagnosis is possible. The method should be used in all patients with arterial disease of the peripheral system to secure a reliable picture of the vascular state and to institute the suitable therapy.

ANESTHESIA

Thimethaphan Camphorsulfonate (Arfonad) in General Surgery. M. S. Sadove, G. M. Wyant and G. Gleave. A. M. A. Arch. Surg. **68**:779-786 (June) 1954 [Chicago].

Thimethaphan camphorsulfonate (Arfonad), a thiophanium derivative, was used in more than 200 patients for the induction of hypotension during surgical anesthesia. Thimethaphan camphorsulfonate is an ultra-short-acting agent; its effect is so evanescent that the agent must be administered in a continuous intravenous infusion if vasodepression is to be maintained. Thus

the level of blood pressure may be adjusted from moment to moment by simply adjusting the rate of flow of the intravenous infusion, depending on the surgical need of the moment. Hence this method of induced hypotension may truly be termed "controlled hypotension" in contradistinction to all other methods or drugs hitherto available. If return of normal pressure is desired at a rate faster than occurs when the administration of this evanescent agent has been discontinued, a very small quantity of any of the common vasopressors will bring about the desired result. The action of thimethaphan camphorsulfonate is markedly facilitated by general anesthesia and by drugs with a vasodepressor action, such as morphine and meperidine (Demerol) hydrochloride. The deeper the plane of anesthesia the more pronounced is the response to like doses of the hypotensive agent. Like the methonium compounds, thimethaphan camphorsulfonate is potentiated by the administration of procaine hydrochloride. Neurosurgery, peripheral vascular surgery, removal of highly vascular neoplasms such as hypernephroma, operations associated with great blood loss (evisceration procedures, pancreatectomy, splenorenal shunts), control of dangerous systemic hypertension and treatment of pulmonary edema due to pulmonary hypertension are the principal indications for this new method of induction of hypotension in surgical anesthesia. Emphasis is placed on the relatively few indications of controlled hypotension in general surgery. Shock, inadequate availability of fluids, inability to replace blood for technical reasons, inadequate skill on the part of the anesthesiologist, severe disease of liver and kidneys, degenerative disease of central nervous system, severe cardiac disease, hypovolemia, uncorrected anemia, and arteriosclerosis constitute contraindications of the method. When thimethaphan camphorsulfonate is indicated, it represents a valuable aid to surgery.

Clinical Experience with Hypotensive Anesthesia. P. H. Lorhan and M. I. Miller. Am. Surgeon **20**:629-636 (June) 1954 [Atlanta, Ga.].

High spinal anesthesia to effect the hypotensive state during surgical intervention was employed by the authors in 25 patients, 2 of whom were aged 89 and 64. Both men were poor-risk patients having major abdominal operations for incarcerated hernia and carcinoma of the stomach, respectively. A 2.5% solution of procaine hydrochloride in Ringer's solution and a 1% solution of lidocaine hydrochloride were used for anesthesia. Blood loss was minimal in each case and postoperative complications relative to anesthesia did not occur. The patients remained alert and oriented except when depressed with drugs. No cyanosis was observed and the skin remained warm and dry. In each patient, the blood pressure returned to the normal preoperative level. Nausea occurred in several of the other patients after the induction of the hypotensive state and during operation when vagal reflexes were elicited by traction. Postoperative hemorrhage occurred in one patient who had had a combined abdominoperineal resection and in whom shock developed. Shock was controlled with one pint of blood and recovery was without further complication. It was thus demonstrated that a few aged, poor-risk patients did tolerate hypotension remarkably well, and did not suffer any untoward effects that could be related to this type of anesthesia. These patients all recovered quickly, and all but one made excellent postoperative progress. Although this small series of cases does not prove that the hypotensive technique is without danger, the authors believe that the method may have some merit when applied to selected cases. Any patient for whom large blood loss may be anticipated is a potential candidate for the method. Also suitable is the patient scheduled for lower abdominal surgery when the Trendelenburg position is of advantage to the surgeon. Less suitable is the patient who must remain in a horizontal position or when positioning places the center of gravity below heart level. Venous return is dependent on gravity, and it would seem unwise to subject a patient to a state of hypotension unless the Trendelenburg position is used. The anemic, debilitated patient with reduced blood volume is a poor candidate for the hypotensive state. For this type of patient adequate preoperative blood transfusion is strongly recommended.

PHYSIOLOGY

A Common Dynamic Factor in Motion Sickness. C. C. Shaw. Mil. Surgeon **114**:347-350 (May) 1954 [Washington, D. C.]

The forces exerted on a floating vessel (a boat, an airplane, or a balloon) constitute a dynamic system with at least six directional components, often referred to as "six degrees of freedom." The forces of the wind and the sea may displace the ship's center of gravity along three orthogonal axes fixed in space or may cause her to rotate about these axes. Oscillatory linear motions along the longitudinal, lateral, and vertical axes are termed surge, sway, and heave. Rhythmic oscillations about these same axes are termed pitch, roll, and yaw, respectively. When under way, the degree of pitch, roll, and yaw may be measured by means of inclinometers as angles of displacement from vertical and horizontal axes passing through the center of gravity of the ship. If the duration is known, the degrees of angular displacement may then be expressed as a function of linear acceleration. This is obtained by multiplying the angular accelerations by their distances from the axis of rotation, which is assumed to be at the ship's center of gravity. Surge, sway, and heave, being linear motions, imply linear accelerations. As such, they may be added to the linear components of pitch, roll, and yaw to obtain total linear acceleration. A quantitative study of the motions of a ship at sea and the incidence of sea sickness among her passengers was undertaken in 1951 aboard two vessels of the Military Sea Transport Service. This is believed to be the first sea trial in which quantitative determinations of motion in a seaway were registered by means of inclinometers and accelerometers. This undertaking may mark a milestone in naval architecture, engineering, and medicine. The mechanical or dynamic cause of motion sickness is identical on land, at sea and in the air. It is the sum of linear accelerations and decelerations along and around the longitudinal, lateral, and vertical axes. Each of the six degrees of freedom of motion may contribute to motion sickness. The linear accelerations of surge, sway, and yaw are almost negligible, and motion sickness is induced by the sum of the linear accelerations of pitch, roll, and heave. The greatest of these in a seaway is heave.

Role of Arterial Wall Secretion in the Regulation of Blood Pressure. C. Jiménez Diaz, P. Barreda, A. F. Molina and R. Alcalá. Circulation **9**:903-907 (June) 1954 [New York].

A series of experiments on dogs has shown that electric stimulation of the central ends of the vagus nerves causes a release of hypertensive substance that is similar in all respects to that extracted from arterial walls. This substance is released into the blood stream, as evidenced by the activity shown by samples of blood taken during stimulation, and the hypertensive effect can be transferred to another dog in crossed circulation experiments. It appears that the substance is released from the blood vessels themselves; hepatectomy, nephrectomy, or adrenalectomy did not prevent the response. Hypophysectomy also did not prevent the response; it seems that the vagopituitary reflex that liberates vasopressin (Pitressin) is not involved here. Release of pressor material from arterial walls after vagus stimulation depends on a mechanism consisting of excitation of vasomotor centers and sympathetic outflow to the arteries. The components of the pressor material released, demonstrated by paper chromatography and characterized pharmacologically, include epinephrine and norepinephrine and at least one other unknown material. It was found that interruption of sympathetic outflow by section of the spinal cord at the sixth cervical vertebra largely prevented rise in arterial pressure due to stimulation of the vagus nerves. In some experiments, however, a small rise in pressure persisted after cord section; it is likely that this effect is due to stimulation of the cervical sympathetic trunk, which lies in the vagus sheath in the dog, with release of norepinephrine from arterial walls in the head. Another hypothesis is that these responses are caused by the release by the brain of a pressor substance, but studies on hemodynamic, respiratory, and vasomotor mechanisms are needed to complete the evidence. Vagus stimulation apparently can activate several mechanisms that modify arterial pressure. The most important seems to be the one that works through the sympathetic nervous system and releases pressor amines from blood vessels.

BOOK REVIEWS

New and Nonofficial Remedies Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1954. Issued under direction and supervision of Council on Pharmacy and Chemistry, American Medical Association. Cloth. $2.65. Pp. 609. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; British agent—Sir Isaac Pitman & Sons, Ltd., 39 Parker St., London, W.C.2, England, 1954.

In this volume the Council on Pharmacy and Chemistry continues its excellent work of evaluating the newer remedies and of bringing up-to-date the appraisal of those previously available. Ranging from agents used in treating allergy to vitamins, the 24 chapters of the text present a comprehensive, concise, and well-written review of the best in current drug therapy. The general statements at the head of chapters 1, 7, 8, and 22 have been expanded, and the sections on penicillin and sulfonamides have been revised and rearranged for better classification and location of information. Cross reference is consistently made to compounds that are related to the subject under discussion but are fully described in other chapters. The addition of lists of drugs added to or omitted from the current volume is a desirable innovation. Each newly accepted drug is covered in a monograph. Another innovation is the addition of the statement of physical properties to the general description of each compound. This was apparently done in some measure to replace the formerly included statements of tests and standards, which are now published in a separate volume. The index, which now appears in a double-column page, is excellent.

Surgical Forum: Proceedings of the Forum Sessions, Thirty-Ninth Clinical Congress of the American College of Surgeons, Chicago, Illinois, October 1953. Surgical Forum Committee: I. S. Ravdin, M.D., F.A.C.S., chairman, and others. Cloth. $10. Pp. 752, with 131 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1954.

This fourth volume of the proceedings of the forum sessions of the clinical congress of the American College of Surgeons is truly "bigger and better than ever" and is distinctly a "must" item for anyone desiring to keep pace with modern surgery. Major investigations into many fields of surgical endeavor are presented, and the contributions have been selected with great care. Nearly 400 surgeons have participated in compiling a subject index of over 500 items, each well written and containing the latest and most authentic information on such subjects as the heart and great vessels, blood vessels and circulation, lungs, esophagus, stomach, intestine, liver, pancreas, shock, nutrition, and electrolytes. Every surgeon should find this volume of real interest.

Elsevier's Encyclopedia of Organic Chemistry. Edited by F. Radt. Founded by E. Josephy and F. Radt. Series III: Carboisocyclic Condensed Compounds. Volume 12 B: Naphthalene. A. Compounds Containing One Naphthalene Nucleus. Naphthoic Acids and Their Halogen, Nitrogen, and Hydroxyl Derivatives. Cloth. $56 per single copy; $49 for series subscribers; $42 for set subscribers. Pp. 3965-4559; xliii; Ind. 45. Elsevier Press, Inc., 402 Lovett Blvd., Houston 6, Texas; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam C, Netherlands, 1953.

This volume is confined to a study of naphthoic acids and their various derivatives and homologues. In the instances of the better-known compounds, such as 1-naphthoic acid and 2-naphthoic acid, the physiological properties are reported. Reference is made in some instances to literature published as recently as 1953. Not many substances reported in this volume are known to physicians, primarily because they have not yet been established as useful in the field of medicine. Nevertheless, as a volume of an important encyclopedia of organic chemistry, this work will be frequently used by medical research men for information as chemotherapy develops and expands.

These book reviews have been prepared by competent authorities but do not represent the opinions of any official bodies unless specifically so stated.

The Eczemas: A Symposium by Ten Authors. Edited by L. J. A. Loewenthal, M.D., M.R.C.P., D.T.M. & H. Cloth. $7.50. Pp. 267, with 77 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1954.

In this book an international team of 10 experts records all aspects of present knowledge of eczema "incomplete though it may be." Although practically all phases of the subject are covered, the approach is almost entirely organic, with no chapter devoted wholly to psychogenic influences on eczema. The subject is adequately touched on in various parts of the book but it does not receive the emphasis accorded it in some quarters because "the subject is not yet sufficiently advanced to warrant its inclusion on an equal footing with the scientific studies presented here." With respect to the latter, an especially interesting chapter is that by Haxthousen on theoretical considerations of allergic eczema in which he discusses all of the experimental work carried out in human beings and laboratory animals on the pathogenesis of eczema. Subjects including the role in sensitization of "simple" substances, proteins, antigens, and antibodies and the part played by lymphocytes as carriers, transplantation experiments, skin reactions, specificity, and the significance of microorganisms are all discussed thoroughly. The other chapters dealing with the role in eczema of various chemicals and bacteria; other phases such as histopathology, special kinds of eczematous eruptions including nummular eczemas, hypostatic eczema, and hand-eczema are also discussed fully. The book is generously illustrated and contains an excellent section on treatment. A table indicating concentrations and vehicles to be used in patch testing is appended. There is a full index. The book is well written and practical throughout. It should interest all practitioners and students.

The Laboratory Diagnosis of Leptospirosis. By J. W. Wolff, M.D., Professor of Tropical Hygiene, University of Wageningen, Netherlands. Publication number 183, American Lecture Series, monograph in American Lectures in Tests and Techniques. Edited by Gilbert Dalldorf, M.D., Director, Division of Laboratories and Research, New York State Department of Health, Albany. Cloth. $3.75. Pp. 99, with 5 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1954.

This little manual deals with one of man's diseases transmitted from rodents and domestic animals. It is now known that many serologic types of leptospira that are not morphologically and culturally distinguishable from Leptospira icterohaemorrhagiae exist as pathogens. This book was written because of a growing need to include leptospiral identification in the routine work of clinical laboratories. The book is mainly devoted to diagnostic procedures, which include dark field examination of the blood, spinal fluid, and urine; cultural procedures and mediums; animal inoculation; and serologic procedures (the agglutination-lysis test, agglutinin-absorption test, and others), with brief chapters on morphology and staining methods. This is followed by a brief discussion of the antigenic structure of leptospira and characteristics of type strains. A list of references is given in the back of the book. The index is adequate. There are a few photographs of equipment but no photomicrographs or diagrammatic sketches of leptospira. This book can be recommended as a laboratory manual in a limited field.

Modern Practice in Anesthesia. Edited by Frankis T. Evans, M.B., B.S., F.F.A.R.C.S., Consultant Anaesthetist, St. Bartholomew's Hospital, London. Second edition. Cloth. $12.50. Pp. 645, with 221 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1954.

This new edition, written by leaders in the field of anesthesia and related areas, includes relatively few additions, deletions, or changes. The contributing authors are essentially the same in this excellently edited, neatly organized, and adequately illustrated book. The book is a cross between a manual and a textbook. It begins with a short history of anesthesia, a chapter on

anatomy for the anesthetist, and a fine section on the physiology of respiration. The physiology of circulation, which should have been discussed next, is not presented as such but is woven into other sections. This book naturally continues with pharmacology, apparatus, and basic considerations such as preparation of the patient, and basal narcosis. Dr. T. C. Gray's section on relaxants is truly outstanding. The book then goes on to discussions of the technical aspects of the practice of anesthesia. It is to be recommended to libraries, students, anesthesia and surgical residents, and practitioners. There are very few weak sections, and many are superb. The only minor point of criticism is that it is impossible to cover in detail all of the subjects discussed in a book of this size. The references are adequate so that the reader may gather supplementary data if he desires. This book gives a true picture of the practice of anesthesia from the British viewpoint.

Physiology in Diseases of the Heart and Lungs. By M. D. Altschule, Assistant Professor of Medicine, Harvard Medical School, Cambridge, Mass., Harvard University monographs in medicine and public health, no. 10. Second edition. Cloth. $7.50. Pp. 554. Harvard University Press, Cambridge 38; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1954.

This small book constitutes a concise and useful springboard to much of the worth-while literature dealing with diseases of the heart and lungs. The references are extensive and well selected. The conclusions of the author regarding the material in the original source articles are brief, sometimes at the expense of explanation and qualifying comments that might be helpful to the reader. This brevity was no doubt unavoidable if the compendium was to be kept within reasonable limits. The system of listing authors' names and years of publication throughout the text that is used here and that has recently found some support among medical editors makes for interruption of thought and loss of smooth reading. The monograph is nonetheless valuable for its brief statements from the literature, carefully culled by an authority. It will be especially helpful to those who seek a ready reference to source material.

Clinical Interpretation of Laboratory Tests. By Raymond H. Goodale, M.D., Pathologist at Worcester Hahnemann Hospital, Worcester, Mass. Third edition. Cloth. $7.50. Pp. 720, with 105 illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1954.

This new edition has been completely revised and covers most of the recent advances in the field of laboratory medicine. As in earlier editions, the book is arranged in two parts. The first provides normal and abnormal values for the body fluids, excreta, and technical procedures, with general discussions of their interpretations; the second outlines the pertinent laboratory findings in various diseases arranged according to the body systems. The laboratory procedures of choice for each disease are listed with the most important first. Each chapter is followed by a list of references. The author also makes use of numerous tables and illustrations, which supplement the discussions and save time and space. A general index is provided at the end. The format and printing are unusually clear; the binding is sturdy and well suited for use both within and outside the clinical laboratory. Clinicians, technicians, and students should find the book highly useful as a textbook and reference on all important aspects of laboratory medicine.

A Manual on Cardiac Resuscitation. By Robert M. Hosler, M.D., F.A.C.S. Cloth. $4. Pp. 183, with 14 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2b, Canada, 1954.

This small book, printed in clear, large, easily readable type, will easily fit in one's coat pocket. It covers briefly in a well-organized form the subject of cardiac arrest, from case histories to legal aspects, but emphasizes etiology and treatment. The style is simple and clear. The book is recommended to all surgeons as a guide to the prevention and treatment of cardiac arrest. The chapters on etiology and prevention should be read and reread. The more they are studied, the less need there will be for the chapter on resuscitation and postoperative management.

Glandular Physiology and Therapy. Prepared under auspices of Council on Pharmacy and Chemistry of American Medical Association. Fifth edition. Cloth. $10. Pp. 611, with 20 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; British agent—Sir Isaac Pitman & Sons, Ltd., 39 Parker St., London, W.C.2, England, 1954.

This new edition is thoroughly revised and modernized with little or no resemblance to the previous texts. With the aid of 31 eminent authorities on endocrinology, the book cannot help but attain adequate, well-documented handling of each problem. Each author has freely expressed his own opinions and views. A traditional approach to each endocrine gland has been followed, with discussions of anatomy, physiology, and abnormalities of function. Wherever possible, emphasis has been placed on treatment. Interesting additions not found in the average textbook are the chapters on integration of endocrinology, abnormalities of body weight, endocrine management of neoplastic diseases, abnormality of sexual behavior, behavior and intelligence, and common misconceptions in endocrine therapy. The last section of the book is devoted to diagnostic laboratory tests for specific endocrine dysfunctions, the chemistry of hormones, and their modes of administration. This book is a worthy successor to its distinguished predecessors.

Music Therapy. Edited by Edward Podolsky, M.D., Department of Psychiatry, Kings County Hospital, Brooklyn, N. Y. Cloth. $6. Pp. 335, with illustrations. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1954.

This book performs a service for the physician by bringing together much diversified and interesting material about music and its place in medicine. Few of the contributors are physicians, and much of the material is difficult to evaluate, a difficulty inherent in the nature of the medium under consideration and increased by the difficulty of measuring so elusive a quality as an emotion. The material is written, for the most part, by enthusiastic proponents of music as a therapeutic tool. Certainly there is enough evidence to indicate that music as an influence on emotions—and therefore a potentially useful adjunct in the treatment of depression and maniacal states, and in group therapy—cannot be ignored or dismissed by the physician. This book summarizes the spread of interest in music therapy and the direction of inquiries into the therapeutic value of music. It should be valuable as a stimulus to further research.

Grenz Ray Therapy: Principles, Methods, Clinical Applications. By Gustav Bucky, M.D., and Frank C. Combes, M.D., Professor of Dermatology and Syphilology, New York University Postgraduate Medical School, New York. Contributors: Ralph Howard Brodsky, D.M.D., consulting Oral Surgeon, Department of Hospitals, New York, et al. Cloth. $8.50. Pp. 204, with 62 illustrations. Springer Publishing Company, Inc., 44 E. 23rd St., New York 10, 1954.

Dr. Bucky has long been recognized as a leading authority on x-rays, and both he and Dr. Combes have had much experience with the ultra soft rays known as grenz rays. They have called to their assistance seven other authorities to produce this valuable text. The development of grenz ray therapy and the difficulties encountered are briefly described. The invention of the Coolidge tube and the ionization chamber made it possible to control the quality and quantity of rays but many later improvements have much enhanced the safety and accuracy of the x-ray machine. Attempts to obtain rays up to 15 Å have ceased and the present machine produce rays of about 2 Å at 15 volts.

Glasser and Steinitz with the aid of diagrams and charts explain the physics and technique of grenz ray therapy. Bucky writes of ionization in biologic materials and of gross skin manifestations, while Goldzieher describes the histological changes produced in the skin. Sagher cites good results in the treatment of tropical diseases with grenz rays, and with Landau describes their use in the treatment of superficial diseases of the eye. The treatment of lesions of the oral mucosa is discussed by Brodsky. Combes contributes an excellent section on skin diseases, covering a wide field in comparatively few pages. His treatment of his subject is conservative and its brevity complemented by references to the literature. The bibliographies at the end of each chapter and the classified bibliography preceding the index add a great deal to the value of the treatise. The book is beautifully printed and well illustrated. It is highly recommended to dermatologists, ophthalmologists, and oral surgeons.

QUERIES AND MINOR NOTES

PALINDROMIC RHEUMATISM

TO THE EDITOR:—*I would like help in the diagnosis and treatment of a 40-year-old man who has had attacks of swelling and stiffness in various joints during the past 20 years. The only joints that have never been involved are the intervertebral. Rarely is more than one joint involved at a time. The only association he has noted is with trauma or overexertion; e. g., when he goes hunting, the ankles, knees, or hips are more likely to be affected and, in work, the wrists or fingers. The affected joint swells rapidly and becomes stiff but without any great pain and then, with application of heat, is completely restored to normal in one and one-half to three days. There is no periodicity to the attacks, and they are not seasonal. They are not accompanied by fever or malaise. The appearance of the part affected is like the arthropathy of serum sickness, but the patient has no other allergic manifestations and no familial history of allergy. His sedimentation rate is 32 mm. All other findings are normal.*

Virginia C. Hamilton, M.D., Bath, Maine.

ANSWER.—A diagnosis of palindromic rheumatism appears to be applicable in this patient. This term, derived from Greek roots meaning "to recur," was employed by Hippocrates to characterize erysipelas and other ailments tending to appear repeatedly in the same patient. The same term was chosen recently by Hench and Rosenberg (*Arch. Int. Med.* **73**:293 [April] 1944; *Proc. Staff Meet., Mayo Clin.* **16**:808, 1941) to designate the type of rheumatic disease herein described in this condition. Usually only one joint is involved during each attack, although occasionally several joints are attacked simultaneously. Episodes appear suddenly, persist only a few hours or days, and disappear, leaving no residual damage. Rarely, episodes lasting up to a week or two have been noted. Almost every joint is liable to attacks, but a predilection for finger joints has been noted. Favorite sites other than fingers include the dorsum of the hands, knees, hips, shoulders, ankles, elbows, temporomandibular joints, sternoclavicular joints, and cervical vertebrae. Fewer than 100 cases have been reported. The disability that accompanies attacks is usually mild, and patients generally are able to work despite the presence of attacks. In some severe episodes, however, pain prevents activities such as dressing or walking, and for exceptional attacks, narcotics are required for relief of intense pain.

Constitutional involvement generally is mild during and between attacks. Patients do not lose weight, generally have no fever, and only occasionally demonstrate elevation of sedimentation rates in connection with severe attacks. Erythrocyte counts and hemoglobin levels are generally normal; no increase is noted in numbers of the eosinophils; blood chemistry has generally shown normal levels of uric acid, calcium, phosphorus, sugar, cholesterol, etc. Roentgenographic examinations characteristically show no changes. In occasional instances, unrelated primary or traumatic osteoarthritis may be present and may be noted in roentgenograms. Pathological lesions produced by palindromic rheumatism are poorly understood. Material reported as having been studied thus far has consisted mainly of a few small biopsy specimens. During attacks, acute cellular exudates have been found in synovial cavities. These have been of a nonspecific character and consisted mainly of polymorphonuclear leukocytes and accumulations of fibrin. During early phases of an attack synovial membranes have shown intense inflammation of a nonspecific character, and later, as attacks have subsided, organizing granulation tissue and leukocytes have been noted in similar specimens. Inspections of interiors of joints during attacks have shown no destruction of cartilage and no formation of pannus or villous proliferation of synovial lining, such as one might encounter in rheumatoid arthritis.

The cause is unknown. The sudden appearance of inflammation and prompt and complete clearing has generally been considered as suggesting urticaria or other allergic conditions, but similar episodes have been observed as forerunners of rheumatoid arthritis, so that the allergic hypothesis is not well established. Many remedies have been tried, but none has been generally successful. Three patients with palindromic rheumatism were treated successfully with a soluble gold compound by Boland and Hedley (*Ann. Rheumat. Dis.* **7**:246, 1948). Other measures worthy of trial include applications of heat in the form of hot compresses or infrared lamps, analgesics, and sedatives.

GUILLAIN-BARRÉ SYNDROME VERSUS POLIOMYELITIS

TO THE EDITOR:—*1. Can Guillain-Barré syndrome be distinguished from a severe case of poliomyelitis in a late stage? 2. What is the usual mode of onset and history of the Guillain-Barré syndrome? 3. What is the frequency of this syndrome, and what is the prognosis?*

S. W. Scorse, M.D., Joplin, Mo.

ANSWER.—1. Acute polyneuritis of unknown cause, which has been described by the terms "Guillain-Barré syndrome" and "infectious polyneuritis," can usually be distinguished from acute anterior poliomyelitis by the distribution of the paralysis. The paralysis in patients with polyneuritis of the Guillain-Barré type is symmetrical, involving all four extremities, and is usually severest in the distal portion of the extremities. There may also be a mild or moderately severe paralysis of the muscles innervated by the facial and the 10th, 11th, and 12th cranial nerves. The paralysis in the usual case of acute anterior poliomyelitis is asymmetrical; that is, there is involvement of one or both lower extremities, one lower extremity and one upper extremity, or one upper extremity and the muscles supplied by the lower third of the medulla oblongata. In severe cases of acute anterior poliomyelitis, in which the muscular paralysis may be generalized, the differential diagnosis from acute polyneuritis cannot be made from the distribution of the paralysis. The results of the sensory examination are of great importance in the differential diagnosis. In acute anterior poliomyelitis there is no impairment of sensation, while sensory loss of a mild or severe degree is an almost constant finding in polyneuritis of this type; it is characterized by a loss or impairment of cutaneous sensibility in the extremities, commonly of glove and stocking distribution, and by impairment of proprioceptive sensations. In addition, the cerebrospinal fluid findings in the early stage are of definite value in the differential diagnosis. The fluid usually contains no cells in patients with polyneuritis, whereas a pleocytosis of 10 to 150 cells per cubic millimeter is an almost constant finding in patients with acute anterior poliomyelitis. If the fluid is examined several weeks after onset, however, a normal cell count and a high protein content (albuminocytological dissociation) are the usual findings in both conditions. 2. The onset of symptoms in Guillain-Barré syndrome is usually acute. In about 50% of the cases there is a history of a previous upper respiratory or gastrointestinal infection that precedes the onset of the neuritis by about 5 to 10 days. After the onset of symptoms, the disease progresses rapidly for the next three to five days. Only rarely is there any progression after that time. In the mild cases improvement may start within a few days of the onset, and there may be complete or almost complete recovery within a period of a few weeks. In severe cases the paralysis is of much longer duration, and it may be many months before the patient recovers completely. Residuals such as partial foot drop and diminished reflexes may occur. 3. Guillain-Barré syndrome is a relatively uncommon disease. Only a few cases

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

are seen in a large medical or neurological service each year. If, however, the total number of polyneuritides is considered, this type is probably second in frequency to the so-called alcohol deficiency type of polyneuritis. The prognosis is usually good, especially in children. The mortality rate in adults was formerly about 20%, but with modern respirator care this figure is much lower.

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MASSIVE HEMATEMESIS

TO THE EDITOR:—*A 33-year-old woman was found to have an active ulcer with a definite crater as an explanation of a massive hematemesis that required blood transfusions in May, 1950. After recovery and for three years she was asymptomatic of any gastrointestinal complaint. She gained 24 lb. and did not restrict her diet for over two years. Fluoroscopic examination in October, 1953, revealed an ulcer on the greater curvature of the stomach at the junction of the pars media and the pylorus and an impression of a duodenal ulcer in the cap. Operation revealed no duodenal ulcer, but a large gastric ulcer was demonstrated in the region described. Is the gastric ulcer a recurrence of a duodenal ulcer or a separate and distinct entity?* *Lloyd H. Murdock, M.D., Zwolle, La.*

ANSWER.—The description of the operative findings indicates that the gastric ulcer was the only active ulcer in 1953. There could have been a duodenal ulcer in 1950, which had healed in 1953. There was, however, only x-ray evidence that this had ever been the site of a duodenal ulcer, and this was not confirmed by surgical exploration. It is well known that, if the duodenum is not opened, some ulcer scar of the duodenum can be missed by palpation and exploration. It would therefore be impossible to definitely state where the massive hematemesis originated.

VENIPUNCTURE IN AN INFANT

TO THE EDITOR:—*Could you advise me on the feasibility of a laboratory technician procuring blood from an infant by way of the femoral vein or a fontanel puncture.* *M.D., Illinois.*

ANSWER.—To obtain a sample of venous blood from an infant by puncture of the femoral vein or by puncture of the fontanel is a relatively formidable procedure, not without danger to the patient. This method of obtaining blood from babies should therefore be undertaken only by physicians with special training with the procedure. By no means should technicians be permitted to obtain blood in this manner. Technicians may be permitted to obtain blood samples by puncturing the baby's thumb, large toe, or heel. If a large sample obtained by venipuncture is needed, the aid of a physician must be enlisted.

CATGUT SUTURES

TO THE EDITOR:—*Do absorbable sutures made from animal tissues transform themselves or lead to a change of the structure, multiplication, and growing of the cell tissues in the human body, which later degenerate into those of the malignant type?* *M.D., South America.*

ANSWER.—Catgut is usually made from the collagenous portion of the submucosa of the sheep's intestine. Variation in the time of absorption is accomplished by tanning the collagen with agents such as chrome salts. Implantation of catgut causes a mild reaction characterized by infiltration of leukocytes, round cells, and macrophages. The extent of the reaction depends on the size of the suture, being less with the smaller sizes, and with the type, being less with chromic than with plain catgut. There is no reported evidence that metaplastic changes have ever occurred at the site of catgut implantation owing to the catgut or the tissue reaction invoked. Since neither collagen nor any of the materials used in preparation of catgut have ever been found to be carcinogens, it is exceedingly unlikely that there is any remote association between the use of absorbable sutures and malignant change.

THRUSH

TO THE EDITOR:—*In regard to the query on thrush in* THE JOURNAL, *July 3, 1954, page 949, I had several cases of thrush last September that were confirmed bacteriologically. The patient responded promptly to application of polymyxin solution made by dissolving one tablet in 30 cc. of water. The solution was applied with a cotton applicator every two hours and prepared fresh twice daily. Most children were able to eat without pain the following day and were asymptomatic in two to five days.* *J. W. McHarry, M.D., Havana, Ill.*

AN EMERGENCY KIT

TO THE EDITOR:—*In the query about an emergency kit in* THE JOURNAL, *July 24, 1954, page 1195, the inquirer desires to know what to carry in an emergency bag for possible cardiac attacks among his aged friends. The reply is good except as regards the use of epinephrine for severe allergic manifestations. It ends by stating, "One 10 cc. sterile syringe with a no. 20 needle would be adequate for all the above medications." A 10 cc. syringe and a no. 20 needle are too large for properly administering epinephrine, a life-saving drug. As this medicament should be injected subcutaneously, commencing with a dose of 4 minims (0.25 ml.) (see pertinent answer in* THE JOURNAL, *Feb. 13, 1954, page 638), *a 1 cc. tuberculin syringe and a no. 25 needle are necessary. It is also advisable to have at least two needles and syringes, not one, because of the possibility of breakage and clogging.*

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EXCESSIVE FLOW OF TEARS

TO THE EDITOR:—*In regard to the query on severe epiphora of unknown cause in* THE JOURNAL, *July 3, 1954, page 950, Fuchs says it is sometimes simply a disease of the aged with no known etiology (Wolff, E.: Pathology of the Eye, ed. 1, New York, Blakiston Company, 1935, p. 231). In these cases I think operation on the palpebral lacrimal gland or on the ductules should be considered. Duke-Elder (Text-Book of Ophthalmology, St. Louis, C. V. Mosby Company, 1952, vol. 5, p. 5211) says keratoconjunctivitis sicca (about the only possible complication) rarely follows excision of the palpebral lacrimal gland, and even when it does occur it happens in patients who have a chronic disease of the conjunctiva that has caused a decrease in the secretions from the glands of Krause and of mucus from the mucous membranes. Thus there seems almost no danger in a patient with a fairly healthy conjunctiva. Spaeth (Principles and Practice of Ophthalmic Surgery, ed. 3, Philadelphia, Lea & Febiger, 1944, p. 103) describes Jameson's simple (graduated, if desired) operation for sectioning part or all of the lacrimal ductules with removal of part or all of the inferior glandular tissue. In the same way that a patient with partial loss of vision from cataracts is given the option of having an operation that is subject to a number of fairly frequent, serious complications, the patient with severe epiphora should be told of the possibility of operation and allowed to decide. I have done this operation on patients who were incapacitated, almost prostrated, by obstruction of vision from tears, severe excoriation of the skin of the cheeks, the necessity to constantly wipe away tears, and inability to appear in public because of constant "crying." They have been cured and extremely grateful; none has had any dryness.*

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